'It's Important to Know In Time'

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory — Technical Gouvernmental — AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

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Price Ceilings On Traded-In Boxes Effective May 18

List Is By Make, Model; Schedule Varies For 'Re-Conditioned' Units

WASHINGTON, MAY 6 — OPA today issued price ceilings effective May 18, which will reflect Feb. 19, 1942 levels on all sales of used mechanical refrigerators.

Maximum prices in dollars and cents figures are listed for hundreds of second-hand refrigerators of all brands and models in the order in Maximum Price Regulation No. 139. A formula to enable sellers to determine the price on all used refrigerators which may have been omitted from the long list is also provided.

The regulation is effective May 18, the same date on which the General Maximum Price Regulation freezing prices of virtually all retail commodities at March levels becomes effective. Until the provisions of the order can be applied, OPA has requested that second-hand refrigerators be sold at prices no higher than the prices listed in the regulation.

"Consumers are advised to consider the fact that no price control on the used boxes exists until May 18," says the OPA release.

The regulation sets specific top prices that may be charged for "as is," "un-reconditioned," and "reconditioned" boxes. In general the selling price for a reconditioned refrigerator is less than half the manufacturer's original suggested retail price for the same machine when new. Maximum prices for most un-reconditioned boxes run about $30 per unit less. While for "as is" boxes the selling price goes down as low as $10.50 each.

All of the maximum prices exclude Federal excise taxes or any state or municipal taxes that are generally passed on separately to the buyer.

Production of domestic refrigera-

(Concluded on Page 24, Column 2)

Sales Of Electric Ranges Stopped On May 2 By WPB Order

WASHINGTON, D. C.—All domestic electric ranges in the hands of manufacturers, distributors, and retail dealers were frozen May 2 by the War Production Board.

In order to make existing stocks and future production available for new defense housing, Army and Navy and Lend-Lease orders, Supplementary Limitation Order L-23-b forbids the sale, lease, or transfer of any domestic electric range except on a preference rating of A-9 or higher, or by specific authorization by the Director of Industry Operations. Ranges actually in transit may, however, be delivered.

The order provides for increased production of electric ranges during the month of May, above the quotas established for the past four months. After June 1, no domestic electric ranges may be produced except to fill orders bearing a preference rating of A-1-k or higher.

Manufacturers of domestic electric ranges are permitted to complete any unfilled portion of the January-April quota which was assigned to them under Limitation Order L-23 on Dec. 13, 1941, and, in addition, to use in the production of such ranges during May, an amount of iron and steel equal to their average monthly use in the year ended June 30, 1941. This will enable them to make

(Concluded on Page 24, Column 1)

Refrigeration—*Victory Production Tool*

INGENUITY, the development of unexpected things under our system of freedom of enterprise, is America's "secret weapon." And the engineering brains of America comprise a natural resource that far outweighs anything possessed by Hitler and Hirohito.

We speak from concrete knowledge, because the air conditioning and refrigeration industry has quietly revolutionized the production of armaments. Somewhat to its own surprise, REFRIGERATION HAS BECOME THE NEW MACHINE TOOL.

New applications of refrigeration and air conditioning to war products are being devised every week. The field has barely been scratched. And yet the *machine tool applications* already found for refrigeration are astounding.

In possessing a well-integrated refrigeration industry—which is so much larger and more productive than that found in all the rest of the world put together that it is like comparing the Empire State building to a squatter's tarpaper shack—the United States is already so far ahead of the Axis powers that they could never catch up even if they took over all of Europe and Asia and had 10 years unmolested to develop them. Here we have an incomparable productive asset, and one that is being used right now to help Win the War.

Refrigeration has become a necessary machine tool in three large categories:

(1) To speed up production

(2) To control quality

(3) To make synthetics

Numbers one and three provide the bulk of the startlingly *new* applications. American industry has seldom run on a 24-hours-a-day schedule before. And we did not realize, until we got into it, that when machines run around the clock they get too hot to handle, or too hot to work efficiently. Refrigeration is the answer. Not only that, but such applications so increase the efficiency that they step up production rates beyond anything previously thought possible.

When President Roosevelt announced his Victory Program in January, experts said it was impossible. But they didn't know about Refrigeration, the Speed-Up Machine Tool, and they underestimated American ingenuity. We are not only going to meet the President's astronomical production schedules, we are going to surpass them !

How is refrigeration helping to *speed up* war production? First, by enabling production machinery to *work longer hours.* Perhaps the commonest use of refrigeration in this connection is in coolants. Without refrigeration, circulating oil coolants in machine tools heat up, deteriorate, and damage the quality of workmanship. With refrigeration, not only are proper tolerances kept, but tools can run longer periods without rest.

Another example: aluminum rivet cooling. If aluminum rivets are allowed to age two hours after quenching, they are usually too hard to drive. This aging can be checked by storing the rivets at a temperature of minus 50° F.

Reversing the situation, refrigeration is being used to age steel faster, to prevent growth. We don't have time any more to wait for normal steel-aging processes.

Is the production problem spoilage? Shrinkage? Expansion? Fatigue? Overheating? Moisture? Drying? Dirt and dust? Static electricity? Perspiration? Corrosion? Lack of uniformity? Refrigeration can solve it.

Continually the smart men out in the field—the jobbers, the dealers, the service men—are uncovering new uses for refrigeration in speeding armament making. We give you a prime example: cooling furnace doors, which become too hot for handling or efficienecy, at times, with continuous operation.

(Concluded on Page 10, Column 3)

Army, Navy Ban On 'Freon' Use Is Rescinded

Investigation Reveals Shortage Not So Great as Thought

WASHINGTON, D. C.—The Army and Navy Munitions Board has rescinded its order prohibiting the use of "Freon" as a refrigerant in new installations of equipment having a capacity greater than 5 hp.

This order followed an investigation which was instigated by complaints by many industry members who believed that the order was not only unnecessary but downright discriminatory. Only a handful of manufacturers are prepared to make ammonia equipment—the alternative to "Freon" in large sizes.

Investigation showed not only that the supply of "Freon" was ample, but that ammonia was exceedingly short. It was also shown that the use of ammonia rather than "Freon" would not necessarily save copper in installations, as had first been claimed.

Hence, according to T. J. Keleher, Captain, U.S.N.R., the lines, "**'Freon:'** The use of 'Freon' as a refrigerant is prohibited in new installations of equipment having a capacity greater than 5 hp." have been removed from the "List of Prohibited Items for Construction Work" of April 1, 1942.

Nelson Is Reviewing Industry's Program

Western Union Telegram
New York City
May 7, 1942

George Taubeneck, Editor:

Donald Nelson just wired Dr. Hainsworth they are reviewing refrigeration conservation program this morning and making slight revisions in wording. Wire does not add up to final endorsement but indicates progress. Dr. Hainsworth asked us to keep you informed.

HELEN PEFFER, American Society of Refrigerating Engineers

(**Editor's Note:** The above telegram refers to the proposed "Program for Victory" plan for conservation of existing equipment and vital materials in the refrigeration and air conditioning industry. The proposed plan, drawn up by Dr. W. R. Hainsworth, national president of the A.S.R.E. following conferences with industry leaders, is published on page 2 of this issue. Dr. Hainsworth will also describe the plan before the All-Industry Meeting in Chicago May 11 and 12.)

WPB 'Service Branch' Organized; What It Covers In Doubt

WASHINGTON, D. C.—Organization of a "Services Branch" within the Division of Industry Operations to act as a clearing house for problems confronting the more than 2,900,000 service institutions in the country was announced May 3 by John R. Kimberly, assistant chief of the Bureau of Industry Branches.

(Refrigeration and appliance repair shops might come under the "wholesale houses and repair shops" category listed as being included in one of the groups.)

Announcement concerning the order stated the following:

"The magnitude of the industry, Mr. Kimberly stated, has made it necessary to establish a separate branch to deal with the many problems arising daily as a result of the war program. The functions of the branch will include processing priority applications from service industries, and assistance in conversion.

"The Branch is headed by Nathaniel G. Burleigh, who was chief of the of instalment sales has been reduced to 12 months and the required down payment for all listed articles has been increased to 33⅓%.

Exceptions to this rule include in-

(Concluded on Page 4, Column 2)

Instalment Sales Rules Tightened

WASHINGTON, D. C.—Amendment No. 4 to Consumer Credit Regulation "W," issued May 5 by the Federal Reserve Board, has further tightened restrictions on instalment sales.

The maximum permissible maturity

(Concluded on Page 24, Column 4)

WPB Bars Use Of Steel And Iron For Air Conditioning Systems, Other Items

WASHINGTON, D. C.—The War Production Board, in a sweeping order issued May 4, forbade the use of iron and steel in more than 400 civilian products, including air conditioning systems and icebox exteriors.

Under Order M-126 limited production is permitted for 90 days, but after that manufacture must stop, even for many items customarily used by the armed forces.

Manufacturers have 15 days to deliver or accept delivery of iron and steel to be used in the manufacture of any of the products listed in the order. For 45 days iron and steel may be processed for the manufacture of the items listed, up to an aggregate weight of 75% of the average monthly weight of all metals processed by each manufacturer during 1941 in the making of each item.

The processing must be completed within the 45 days. For the next 45 days he may assemble items on the list. After that date all use of iron or steel in the manufacture of items on List A of the order must cease.

Manufacturers who have been making items on the list out of iron or steel may not turn to any other metal except gold or silver to make that article.

During the 90-day period when fabrication and assemblage is permitted manufacturers may sell iron and steel to others engaged in the same line of business.

They may not sell iron and steel from inventory otherwise except on preference ratings of A-10 or higher for other than alloy steel and A-1-k or higher for alloy; to the Metal Reserves Co. or its agencies, or with the specific authorization of the Director of Industry Operations.

Also included in the order is a List B, which applies only to Army, Navy, or Maritime Commission orders. These may be processed, fabricated, or assembled for 90 days from May 4 without restriction. At the end of the 90-day period manufacture of all these items even for Army, Navy, and Maritime uses except with special authorization by the Director of Industry Operations must cease.

An entirely new appeals system is set up in the order. All appeals must be made on Form PD-37 and must be filed with the field office of the WPB for the district in which the plant to which the appeal relates is located. No appeal will be considered that is not filed in accordance with this requirement. Administration of the order will be moved out of Washington to New York City, where offices have been established.

In addition to air conditioning systems, other items on the "A" list of interest to refrigerator and appliance manufacturers and dealers include:

Attic fans, commercial electric cooking stoves, counter tops, dishwashing machines (except hospitals), dust collecting systems and equipment (except on A-1-J or higher), electric water coolers (except on PD-1A or PD-3A certificates), icebox exteriors (except portable blood banks), ice cream freezers (household), ice cube trays, refrigerator containers and trays (household), show window lighting and display equipment, store display equipment and show cases, and window ventilators (except industrial and hospitals).

Air conditioning systems and all the above mentioned items are also on the "B" list with the exception of ice cube trays, store display equipment and show cases, and window ventilators.

Milwaukee Dealers Cut Store Hours

MILWAUKEE — Directors of the Wisconsin Radio, Refrigeration & Appliance Association have recommended shorter store hours for distributors and dealers during the War.

The recommendations are:

(1) That beginning May 1, appliance distributors close on Saturdays keeping within the limit of a 40-hour week by operating five 8-hour days; service departments to be maintained, if felt essential, on a skelton crew basis.

(2) That retail appliance dealers on or before May 1, reduce night opening of stores from the present three and four nights per week to two nights per week.

$4.50 Top Charge For Year's Service With New Box Sale

WASHINGTON, D. C.—The maximum charge for the one-year service contract which a manufacturer is allowed to add to established base prices in sales of domestic mechanical refrigerators permitted by the War Production Board is fixed at $4.50 in Amendment No. 2 to Revised Price Schedule 102 (Household Mechanical Refrigerators).

Amendment No. 1, issued April 11, permitted the manufacturer to add certain charges to base prices, set forth in the original schedule, in sales to persons assigned preference ratings of A-10 or better by the War Production Board. Among these charges was "the amount paid or to be paid by seller on account of the one year service contract, if that service is requested by the purchaser."

The effect of Amendment No. 2, effective April 30, is to place a ceiling on that service charge. A study by the OPA showed that during the two-month period prior to Feb. 2, 1942, the period which formed the base for prices established in the original schedule, the highest charge for such service was $4.50.

Baltimore Firm Re-opens

BALTIMORE—Meyer Lewis has reopened Berlin & Lewis, Inc., major appliance retail dealership, under the same name at 1317 Baltimore St.

Air Conditioned Vault Guards Old Masters From Bomb Dangers

NEW YORK CITY—Functions of air conditioning in the War Effort are expanding far and wide into odd applications, as shown by the recent installation of year-round air conditioning equipment in a bomb shelter in the heart of New York City.

Consisting of a series of subterranean cellars, this bomb shelter is located below the Frick Collection, a Fifth ave. museum, ready to store the priceless paintings and works of art in case of emergency. The Carrier system was installed to protect the collection from the ravages of moisture, maintaining the proper temperature and humidity required to preserve painting oils.

D. T. Ryan, of the Carrier Corp.'s New York office, made the sale. The museum itself also is equipped with an air conditioning system.

Naval Station Purchases 6 Warren Stock Models

KEY WEST, Fla.—Indicative of the extent to which regular models of commercial refrigerator lines can be used in posts maintained by the armed services are the six commercial cabinets installed in the U. S. Naval Station at Key West by the Warren Refrigerator Co.

Equipment installed included three display and storage cases, one full-vision display case, and two dairy refrigerators.

Voluntary Program For Conservation of Vital Materials and Equipment In Operation Adopted By Refrigeration and Air Conditioning Industry

A.S.R.E Sponsors 'Victory Program' With Courses Of Action For Producers, Distributors, Servicemen

NEW YORK CITY—A voluntary conservation plan which can be a notable contribution to the nation's wartime effort has been announced as the Refrigeration and Air Conditioning Industry's "Program For Victory," and already has the endorsement of 12 leading organizations in the industry—The American Society of Refrigerating Engineers, Refrigeration Service Engineers Society, Air Conditioning & Refrigerating Machinery Association, Association of Refrigerated Warehouses, Commercial Refrigerators Manufacturers Association, National Frozen Food Locker Association, Inc., National Association of Ice Industries, National Association of Practical Refrigerating Engineers, Practical Refrigeration Engineers Association, National Refrigeration Supply Jobbers Association, Refrigeration Equipment Manufacturers Association, and the Standard Refrigeration Compressor Association.

The "Program For Victory," which specifies practical means of saving, simplifying, and substituting materials needed in the war, is the outgrowth of informal conferences between Dr. William R. Hainsworth, president of The American Society of Refrigerating Engineers, and various officials in Washington.

Preliminary folders outlining the plan will be distributed by the A.S.R.E. to other cooperating societies and to companies in the industry, and the plan will be presented by Dr. Hainsworth at the All-Industry Meeting in Chicago, May 11.

The complete text of the Refrigeration and Air Conditioning Industry's "Program For Victory" follows:

A Wartime Message to every member of the Refrigeration and Air Conditioning Industry

The months ahead are critical months for America—critical months in Democracy's war to assure freedom and decency and tolerance for all of us and for our children.

You of the Refrigeration and Air Conditioning Industry are doing a splendid job of providing and keeping in condition much-needed equipment for men and plants who are supplying armaments to our fighting forces.

You're the men behind the men behind the guns! And we're proud of you.

But, America needs **more** help from you. Building a bridge of bombers across the Atlantic—throwing a wall of tanks into the fray—sending out more and more ships of war . . . all this **demands** materials and metals in quantities never dreamed of before.

You can help provide these materials—steel and copper and other metals—by helping America CONSERVE. That, in a nutshell, is the object of your industry's "Program for Victory"—to SAVE . . . SIMPLIFY . . . SUBSTITUTE.

Specifically, this program calls on you to avoid every waste of essential materials and supplies. To make the most of existing equipment. To collect reclaimable metal for wartime use. To reduce the number of models now being produced. To release vital war metals by finding substitutes. To cooperate in all possible ways with governmental agencies in the conservation of equipment, materials, and power.

The Refrigeration and Air Conditioning Industry has already demonstrated its patriotism. It will not falter on this new assignment.

I pledge to CONSERVE FOR VICTORY—SAVE . . . SIMPLIFY . . . SUBSTITUTE . . .

For the Manufacturer

If a refrigeration or air conditioning manufacturer, I will . . .

1. Use substitutes for critical materials. Eliminate waste and promote systematic maintenance.
2. Standardize equipment, test methods, and practice. Simplify product line.
3. Urge users to make full use of service facilities to keep equipment in order.
4. Assist distributor's service organizations and jobbers with engineering and service help on this wartime program.
5. Seek out usable condensing units, fittings, and other materials and use in place of new products.
6. Research to find new applications to further the war effort.
7. Prepare for air raids. Emphasize air raid instructions on refrigerating equipment.

Distributors and Dealers

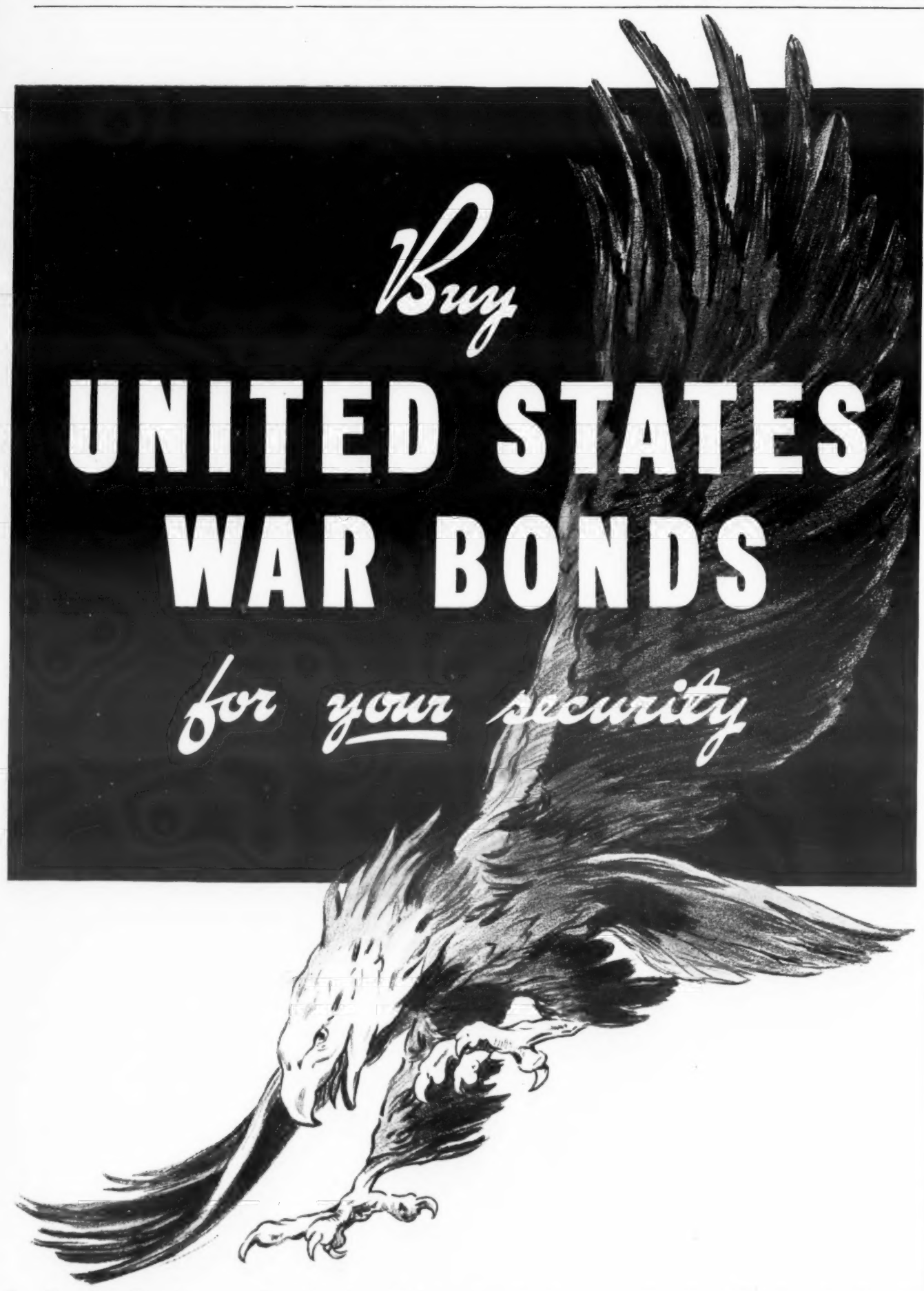
If a distributor, dealer, or jobber, I will . . .

1. Use my experience to conserve equipment and materials. Select proper sizes and types of equipment for most efficient use.
2. Speed up war production by refrigeration processes. There are many such applications. Discover new ones.
3. Check over installation and service facilities. Put my shop in order.
4. Employ capable, experienced, and industrious service men. Encourage their training.
5. Urge users to have their refrigeration equipment checked and put in good order.
6. Take inventory of idle refrigeration equipment, valves, fittings, and other materials. Use this equipment in new instalations lor broadcast its availability.
7. Arrange to give emergency service.

Serviceman's Program

If an operator, maintenance, or service engineer, I will . . .

1. Keep machines running efficiently and smoothly. Check performance. Conserve electricity, fuel, and power.
2. Find all leaks and repair them as soon as possible. Be sure not to add refrigerant until leak is found and repaired. If necessary, remove refrigerant and transfer it to an approved container. Avoid purging to the air. Check shaft seal. Tighten gasket joints.
3. Check compressor oil level. Oil motor bearings and keep them oiled.
4. Keep motors operating efficiently. Clean commutators and brushes. Replace badly worn bearings.
5. Check belt alignment and tension. Conserve rubber.
6. Blow off condenser surface on air cooled machines. Be sure that air supply is adequate.
7. Clean condensers on water-cooled machines. Be sure there is no partial stoppage. Be sure that the water valve is set to maintain economical condensing pressure. Clean regulating valve and strainers.
8. Check insulation for moisture, deterioration and tightness. Replace if defective.
9. Make certain that tools and equipment are in good order. Clean and check tool kit.
10. Check stock of parts, fittings, and supplies.
11. Return empty refrigerant cylinders to suppliers without delay.
12. Give prompt service. Be sure of the diagnosis of trouble. Avoid guesswork. Plan work to save time and tires. Concentrate effort. Avoid repeat calls. Study service manuals and information supplied by manufacturers.
13. Check expansion valve if crankcase runs cold.
14. Remove oil from rubber mounting blocks.
15. Clean evaporator surface.
16. Advertise and publicize my ability and desire to aid in the wartime program.
17. Instruct users in procedure in an emergency.



ANSUL CHEMICAL COMPANY

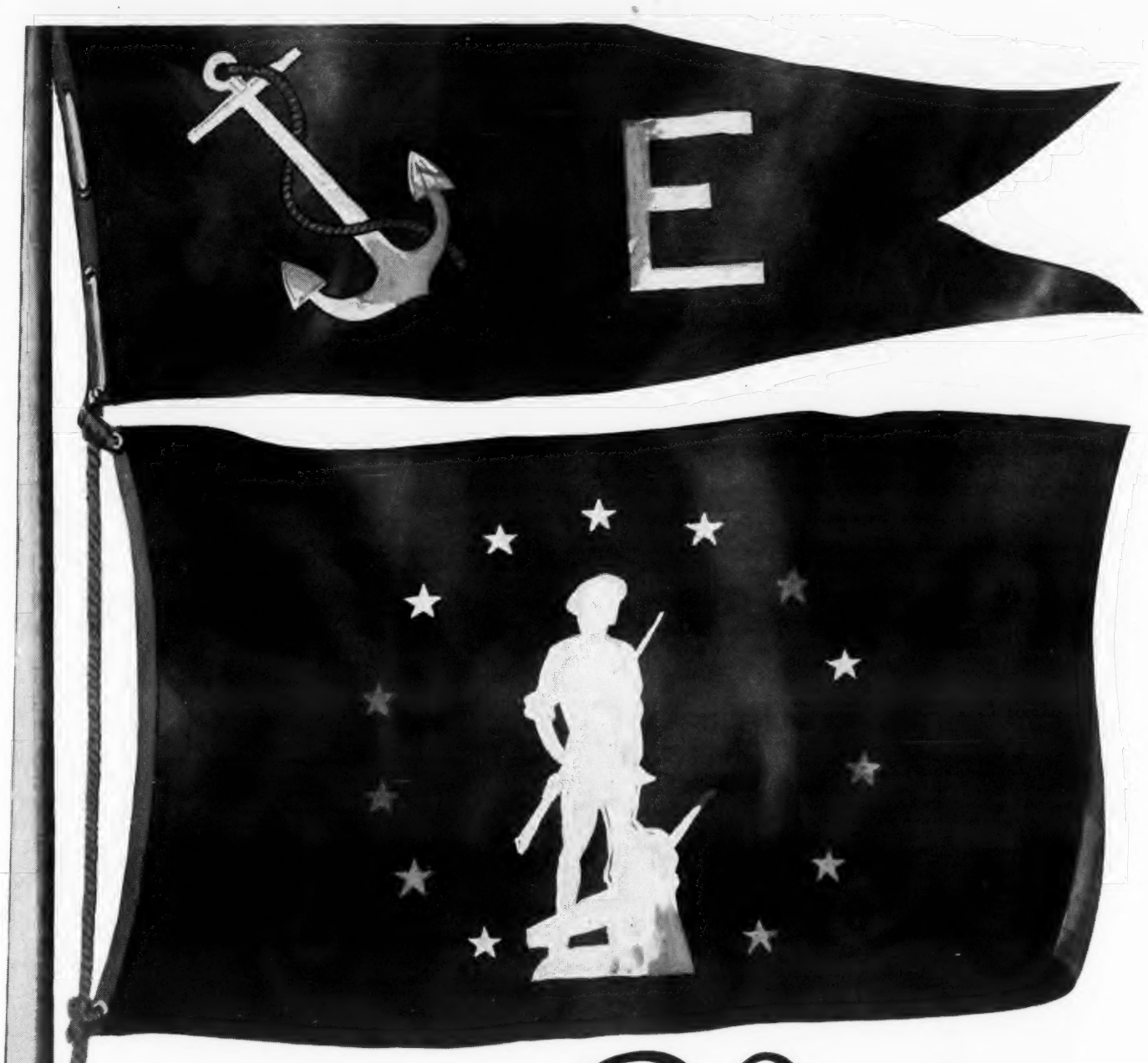
See us at the
ALL-INDUSTRY
Refrigeration & Air Conditioning
MEETING
MAY 11 — 12 — 13
Stevens Hotel, Chicago
JAS. P. MARSH CORP.
2067 SOUTHPORT AVENUE, CHICAGO, ILL.

Our Record

OF WAR PRODUCTION

★ ★ ★

May 1st, 1941..... 5% War Effort
Sept. 1st, 1941.....15% War Effort
Nov. 1st, 1941.....30% War Effort
January 1st, 1942..45% War Effort
March 1st, 1942....70% War Effort
May 1st, 1942.....75% War Effort
By August 1st, 1942 95% War Effort



A Salute to Chieftain

PRECISION IN WAR—Several months before the events at Pearl Harbor, Tecumseh Products Company increased plant facilities to make a new product for a new customer, the Ordnance Department of the United States Navy. The same precision methods on single purpose tools were applied to the manufacture of this product that have been so successful in maintaining the uniform high quality of "Chieftain" condensing units and compressors. This product was turned out ahead of schedule, the quota exceeded and all inspection and ballistic requirements met.

In recognition of this accomplishment, the Navy has honored Tecumseh Products Company with the award of the "Navy E."

The Navy E has been for many years a mark of excellence. Originally this highly coveted and respected award was made to the crews of the Navy for efficiency in gunnery, battle practice or engineering.

In this national emergency, a limited number of awards have been made to the crews behind the crews behind the guns. Secretary Knox, in his letter to Mr. Herrick, advising of the award says, "This is an honor not lightly bestowed, and one to be cherished by you and your associates."

The Minute Man Treasury Flag is an equally distinguished award. It was presented to Tecumseh Products Company and its employees for having 96% of the employees participating in the payroll savings plan.

These two awards were given to us simultaneously, and *no other manufacturer in the United States has both.*

Our employees have stood the test of patriotism. They are giving a full measure of their time and skill as well as their money to the one great purpose—a successful conclusion of this War and a lasting peace to follow.

Refrigeration and the War—In refrigeration as well as munitions, we are playing our part. The green light is set for preference rated orders in our plant. Non-defense orders must be sidetracked until the main line is clear. Our customers have been very coooperative and we know they understand that we are giving them every possible consideration. But—defense must come first.

When this awful madness of War is over and the world returns to the serenity of peace, Chieftain will again take a leading place in refrigeration.

Until then, we proudly promise that we will do our part. ★ ★ ★ ★ ★ ★

Chieftain

TECUMSEH PRODUCTS CO.
TECUMSEH . . . . MICHIGAN

Priorities Information

Correction!

Attention has been called to two misstatements in the news story headlined "Servicemen Must Be on a 'List' To Get PD-399 Forms," which was published in the May 4 "Bulletin Edition" of AIR CONDITIONING & REFRIGERATION NEWS.

Following the statement that supply jobbers should send in lists of their customers to manufacturers of units and ask them to submit these lists to the WPB, the following sentence appeared.

"Such lists should not include firms that do household electric refrigerator service only, as they are covered by the P-126 Order."

The last part of this sentence should read, of course, "as they are **not** covered by the P-126 Order."

The final paragraph of this story read as follows:

"When the Repair Order and Limitation Order are effective, the PD-1X form should be used by the parts jobber to keep his 'commercial refrigeration' supplies in the minimum condition allowed, and to replace sales of 'household' repairs. Any direct rated orders on PD-1A, PD-126, and others should be served only once, and that on the manufacturer."

This somewhat garbled the information which was obtained by C. E. Borden, president of the National Refrigeration Supply Jobbers Association, during a visit to the WPB offices the end of last month. The correct version, as originally given out by Mr. Borden, states:

"Any direct rated orders on PD-1A, PD-126, etc. should be extended by you direct to the manufacturer. Priority obtained on PD-1X should be served only once, and that on the manufacturer."

'Services Branch' Is Set Up By WPB

(Concluded from Page 1, Column 2)

former Service and Distribution, Office and Service Machinery Branch and who is a veteran member of the WPB organization. The assistant chief is O. G. Sawyer, of Durham, N. C., formerly supervisor of purchases for Duke University and Duke Hospital.

In addition to serving as the focal point to which all institutions classified as service insitutions can bring their problems, the Branch has supervision of the office machinery, industry and the services machinery, industry, including all types of office machinery, domestic laundry machinery, commercial laundry machinery, dry cleaning machinery, industrial vacuum cleaners, floor maintenance machinery, and institutional dish, glass, and silver washing machinery.

"Mr. Burleigh announced establishment of eight sections within the Branch, the first two dealing with machinery and the remaining six concerned with services to all service institutions.

"The sections and the chiefs appointed for each are:

"Office Machinery Section:

"Arthur Sanders, of Dothan, Ala., who has spent six years serving with the controller of the Currency and who has been engaged in WPB liaison work between the Army and Navy and various war agencies.

"Service Machinery Section:

"L. L. Frey, of New York City, former industrial engineer for the General Electric Co., American Pencil Co., Cincinnati Planer Co., and other firms.

"Financial and Business Services Section:

"James D. Vail, Jr., of Evanston, Ill., who was a partner in Crane, McMahon & Co., a banking and brokerage concern.

"Retail and Wholesale Trade Section:

"S. J. Dunaway, of Dover, N. H., former president of Expello Corp., sales manager of the Lye Department of Hooker Electro Chemical Co., Niagara Falls, N. Y., and advertising manager and assistant sales manager of B. T. Babbitt, Inc., New York City.

"Office Buildings, Hotels, and Restaurants Section:

"Frank A. Duggan, of Santa Monica, Calif., former president of Greely Square Hotel Co., and executive vice president of Hotel Statler Co., in charge of all hotel operations.

"Repair and General Services Section:

"Dewey M. Crim, of Washington, D. C., former executive of Crim's Store & Fixture Co., Memphis, and sales engineer for Thomas Grate Bar Co., Birmingham, Ala."

Questions Raised By Repair Order P-126 Need Answering At Chicago Meeting

National Refrigeration Supply Jobbers Association
Office of C. E. Borden, President
145 High St., Boston, Mass.

Editor:

I note three questions in the first column of your April 27 issue regarding the new Repair Order P-126.

(Editor's Note: The questions we asked in our story about P-126 are quoted from that account as follows:

"Three main questions come to mind upon a reading of the order, questions that it is hoped will be answered at the All-Industry Conference, if not earlier. These are:

"(1) An interpretation of the clause which says 'The preference ratings hereby assigned shall not be applied (i) to obtain any copper, copper base alloy, stainless steel, or alloy steel for use in the manufacture of any materials to the delivery of which preference ratings may be applied under this Order, or to replace in the inventory of a manufacturer any copper, copper base alloy, stainless steel, or alloy steel used in the manufacture of any such material.' If taken literally, this provision means that a manufacturer of repair parts must deplete his stock in filling orders under P-126, but cannot replenish his inventories by the priorities granted.

"(2) It is stated that 'the order, unless sooner revoked, shall expire on June 30.' Possibly this was inserted because of a contemplated change in the complete priorities system by that date.

"(3) Ratings may be obtained only by 'designated Emergency Service Agencies and their suppliers,' and 'in order to obtain designation, an agency must be regularly authorized to represent a manufacturer, owner, or lessee of air conditioning or refrigerating equipment.' It is not made clear where the independent service company stands in this picture."

Possibly somebody else has already answered these questions, but I believe you will find the answers to be as follows:

(1) A manufacturer may not extend the rating extended to him from the field. The manufacturer is supposed to operate under Production Requirements Plan Order P-90 in replenishing his stocks.

(2) The order is dated to expire June 30, which is a common expiration date with other "P" orders now being issued. The trend is away from the "P" type of order over to P.R.P. and the use of PD-1X by distributors. Due to the complicated and varied ratings in P-126 it does not seem practical to transfer refrigeration industry to a PD-1X distributors application. If that feeling is still in effect in Washington by June 30, the Order (P-126) will be extended and re-extended for further periods.

(3) Emergency service agencies are being listed to WPB by equipment manufacturers, meaning the coil and compressor group. Jobbers are listing their customers, including the independent service men, to the independent equipment manufacturers. They are thus being recorded in Washington on the master list. Very few jobber lists have been extended to date due to lack of requests from our sources of supply for such lists, but even without the jobber customers the estimate in Washington was, as of the 27th, that a total of 22,000 names had been submitted for licensing.

CHET BORDEN

Answer: Not only the refrigeration parts jobbers, but the entire refrigeration and air conditioning industry, owes a debt of gratitude to Chet Borden for his continuing efforts to aid the industry's cause at Washington, and to get and to spread interpretations of important rulings affecting the industry.

However, in this case Mr. Borden's answers still leave Questions 1 and 3 wide open.

Text of P-126 does not refer to the manufacturer not "extending" ratings received through this order to copper, copper base alloy, stainless steel, or alloy steel. Rather it says he shall not "apply" the rating to replace his inventory.

As for question No. 3, the matter of how the serviceman who is on nobody's "list" will receive an application form is yet to be answered.

Shortage of Men Makes It Imperative To Grant Licenses To All, Says Distributor

Plainfield, N. J.
Mr. J. S. Knowlson
Director of Industry Operations

Referring to the War Production Board's Division of Industry Operations Preference Rating Order P-126 issued April 20, 1942 over your signature, after thoroughly reading it I have come to the conclusion that it is a sugar coated licensing order involving the skill, business experience, and economic existence of thousands of small business men.

I agree that the order does cure a serious deficiency in that it gives refrigeration repair and reconditioning of refrigeration equipment a higher priority rating for the obtaining of refrigeration parts containing critical materials. However it also restricts, as I understand it, anyone who has not obtained a Serial Number from the War Production Board from obtaining material regardless of his skill and for whom he might be contacting to do a job.

There are many competent so-called independent servicemen who are doing refrigeration work for industries engaged in vital war work and if these men should not obtain a license their services would be lost because they could not buy material.

It has been brought to my attention that any person or persons engaged in rendering emergency service who may apply for a Serial Number from the War Production Board will be granted one at the discretion of the Board. The danger of this procedure is that if a man is not granted a license he will be forced to use his knowledge and skill for the benefit of someone who has a Serial Number.

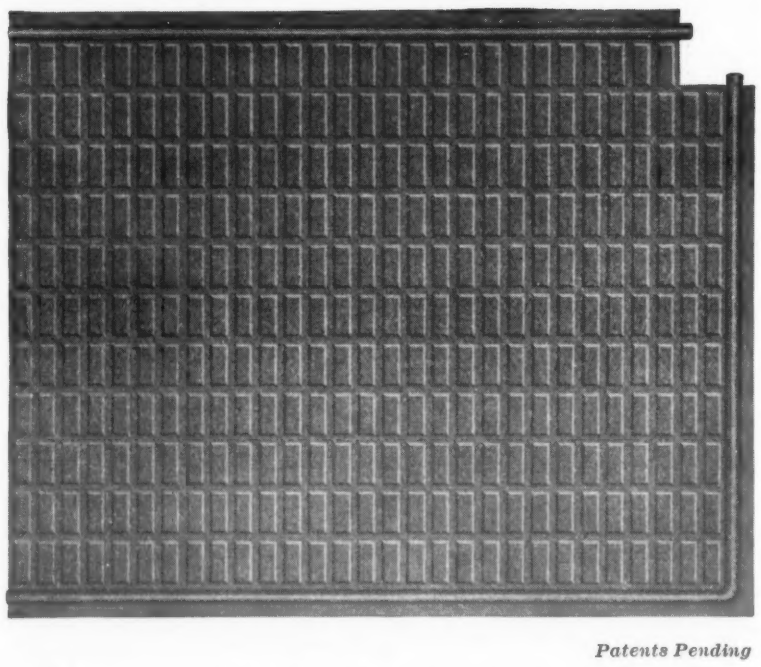
As one who is actively interested in the distribution of refrigeration equipment to contractors it has been my experience that the industry has lost a great many men to the armed forces and plants engaged in war work and the remaining ones are working 12 to 14 hours a day repairing equipment that is vital to the health and morale of our nation.

If control is the essence of this order let us grant the Serial Numbers to those engaged in the business who apply for a number, enforce the provisions of the order, prosecute the violators, this has always been the American way. PAUL J. CONLY

Meet the Demands of **WAR** *with* **POLAR** **EVAPORATOR PLATES - - - -**

With the Army in the Field; in Ships sailing the Seven Seas; and on the Home Front, Polar Evaporator Plates are doing a war-time job efficiently, economically, and with complete satisfaction.

Polar Evaporator Plates are now in production for all types of refrigeration essential to the War effort.



Patents Pending

ROBERT M. GREEN engineers have a background of over 68 years of active experience in the creation and handling of "cold". It is the oldest concern continuously in the business of refrigeration because its first product — a soda fountain — was for the dispensing of cold beverages.

With Polar Evaporator Plates, the Green Company brings to the refrigeration industry — at a most critical time — a modern, thoroughly practical plate, which permits manufacturing economies, higher ratio of usable storage space, and lowered operating costs.

Unrestricted flow of the refrigerant practically eliminates pressure drop, reduces compressor burden, and minimizes service difficulties.

A proven higher K factor efficiency permits use of smaller evaporator plates, thus reducing production costs appreciably.

Our engineering staff is available for consultation on any refrigeration problem.

ROBERT M. GREEN & SONS, INC.
1413 VINE STREET, PHILADELPHIA, PA.

Est. 1874

Midwest Refrigeration Supply Jobbers Association

SERVING THE MIDWEST!

Dealers and Servicemen—buy from an M.R.S. Jobber—he handles the best lines, the most complete stocks, offers you quick, convenient service right in your own territory. Same day or overnight delivery. Low prices.

Write to Jobber nearest you for Refrigeration Supply Catalog

ASSOCIATION MEMBERS

Brass & Copper Sales Company
2817 LaClede Ave., St. Louis, Mo.
Dennis Refrigeration Supply
Sioux City, Cedar Rapids, Des Moines
Hoffman Supply Company
812 Boonville, Springfield, Mo.
Iowa Radio Corporation
1212 Grand Ave., Des Moines, Iowa
National Refrigeration Parts
510 Water St., Sioux City, Iowa
Refrigeration Equipment Company
101 E. 24th St., Kansas City, Mo.
Refrigeration & Industrial Supply Co.
422 S. 7th St., Minneapolis, Minn.
Republic Electric Company
114 First St., Davenport, Iowa
Ruegg Refrigeration Supply
223 N. 25th St., Omaha, Neb.
Vincent Brass & Copper Company
100 N. Second St., Minneapolis, Minn.
Winterbottom Supply Company
Commercial & Miles, Waterloo, Iowa

What Dealers Think and Do About Merchandise Shortages

Gift Shop, 'Juvenile' Furniture, Lending Library—For a Start

MANITOWOC, Wis.—A gift department tucked into the store's balcony has proved to be the answer to the Ziesler Appliance Co.'s problem of a new line to supplement appliance stocks that would not throw the store into competition with well-established outlets with greater buying power and wider experience.

With a young lady who has owned her own gift shop in charge, the gift department is thriving, Upton Ziesler, owner, reports. An extensive line of greeting cards and a lending library have been magnets in drawing customers to the balcony shop.

Other successful lines featured include: floor and table lamps, stationery, mirrors, pottery, colognes and soaps, paint, utensils, non-electric sinks, glassware, luncheon sets, mops, floor polishes, hampers, and cold storage lockers for the home.

This General Electric dealer has also discovered that a line of juvenile furniture and baby gifts has a year-around appeal.

Mr. Ziesler is now considering equipping the store with a complete stock of frozen food in anticipation of canned goods shortages.

Toledo Store Uses a 'Switch' on Salesmen

TOLEDO — William Wright, appliance buyer for the Lion Store here, is taking steps to keep his staff of appliance salesmen in the store's employe despite shortages.

"We are going to switch our men gradually into other departments such as luggage, furniture, etc., where they can use the experience of selling appliances to good effect," he said.

"We are going to keep selling Norge, Frigidaire, and Kelvinator refrigerators and other appliances as long as we can obtain them, but we don't want to lose a good staff of specialty men if business falls off to a nothing.

"So I'm going to 'loan' the men to other departments.

'Callback' Sidelines Will Keep Customer Contact

PHILADELPHIA — Everybody's, Inc., appliance distributor is helping appliance dealers to keep up contact with refrigerator customers of the past with a number of "callback" sidelines. These include refrigerator storage jars and water bottles, refrigerator clocks, and kitchen cabinets, all new merchandise added during the past few months. Samuel Fingrutd, manager of the company, is attempting to sell every Philadelphia appliance dealer on the idea of re-contacting his former customers at least twice a year for the duration.

Builds 3-Wheel Power Bike For Small Loads

LA CROSSE, Wis.—Ray Pfafflin of Pfafflin Bros., local appliance firm, has constructed a three-wheel motor bike to deliver small loads. The unit, capable of hauling materials weighing up to 200 lbs., can attain a speed up to 30 miles per hour and gets about 50 to 60 miles to the gallon of gasoline.

Mr. Pfafflin constructed the unit from a new bicycle and an old one. These were cut apart and welded together to form the three-wheeled bike with extra metal rods used for greater strength. A ¾-hp. gasoline engine was added together with a box between the two rear wheels.

The three-wheeler is being used for minor service calls, delivery, and pickup, thereby conserving the truck.

'Get-It-Over-With' Is New Name For a Sale

MENOMINEE, Mich.—"We're tired of the uncertainty of how or what we will be permitted to sell," declared Van Domelen Co. here last month and proceeded to stage a one-day "Let's-Get-It-Over-With" sale of 24 Norge and Philco refrigerators.

"Although our stock of Philco and Norge refrigerators has shrunk from 85 to 24," a company advertisement told customers, "it's not quite fast enough to suit us. We've got a hunch that right now before something else happens is a good time to get out from under."

W. A. Case & Son Moves

ERIE, Pa.—W. A. Case & Son Co. has moved its appliance showroom and warehouse to 2001 Parade St., Erie. This division of the company handles Hotpoint appliances, refrigeration supplies, and Tylac products.

Furniture Association Executive Attacks Some Policies of Wholesalers

MILWAUKEE — Roscoe Rau, executive vice president of the National Retail Furniture Association, addressing the Wisconsin Retail Furniture Dealer's Association convention here, recommended to the dealers that they check to determine whether jobbers have been raising their prices to dealers, and also urged protests against "the sale of merchandise to other than legitimate retail furniture stores."

Mr. Rau asserted that in some cities increases made by wholesalers had been put into effect as early as last fall, and urged retailers who found such a state of affairs to contact the association's national office.

It was stated that firms previously engaged in other fields who are taking on furniture lines are doing so merely to hold their organizations intact until they are again able to enter their regular line.

One furniture dealer declared that three large garages on Milwaukee's south side had entered the appliance business, but that they had suspended operations because of an inability to obtain sufficient merchandise and because their staffs didn't take readily to house-to-house selling.

Another dealer made the complaint that many of these concerns entering the furniture and appliance field now are being sold merchandise by wholesalers while dealers of long standing are unable to secure sufficient goods.

Adds Carpet Sweeper Line

WASHINGTON, D. C.—The Edgar Morris Sales Co., local distributor, has recently added the Stokol product of the Schwitzer-Cummins Co., of Indianapolis, Ind., the Usolite line of flashlights, and Landers' carpet sweepers to its present line.

Dealer Converts Part of Store To 'Game Room'

NEW YORK CITY—To offset the loss of sales volume resulting from the wartime ban on civilian radio output, the Haynes-Griffin radio store here has added a game room that will likewise dispense products of home entertainment, George Lohman, vice president, announced last week.

Promoting adult games and toys for children, the new game room has been fitted to demonstrate badminton, table tennis, gin rummy, archery, billiards, and similar forms of popular home entertainment.

Paints and Linoleum New Line For Dealers

HARRISBURG, Pa. — To supplement diminishing appliance stock, the Burche Co., refrigerator and appliance dealer here, has added a wholesale and retail paint, painter's supplies, and linoleum departments.

AFTER VICTORY—WHAT?

A Statement by Frank R. Pierce

Some day the ways of peace and democracy will once again prevail in this war-torn world.

And when they do, there will be a retail appliance business far greater than we have ever known in the past.

There will be a large market of "first buyers" built up during the period when no new refrigerators will be available.

There will be another large market of "replacement buyers"...buyers whose refrigerators have become out-of-date or worn out during the war years.

When that day comes, Kelvinator will be ready . . . with new products as outstanding as those which have paced the refrigerator industry in the past years.

Meanwhile, Nash-Kelvinator Corporation is completely dedicating its factories, its skill, and its manpower to war production today in an all-out effort to help speed the winning of the war.

And out of this production for war will come new materials and new methods for the peace that will follow . . . new applications of metals and plastics ...to make the Kelvinators of the future gems of convenience and efficiency.

These Kelvinators are now on the planning board . . . to be designed . . . improved . . . and redesigned that they may be the finest products possible when production is again resumed. At that time . . . as in the past years . . . we will provide those tangible evidences that give force to our slogan—

"Get More—Get Kelvinator"

Frank R. Pierce

Vice President in Charge of Sales

NASH-KELVINATOR CORPORATION • DETROIT • MICHIGAN

General and Private Conferences Mark Plans For All-Industry Meeting

Manufacturers To Answer Customer's Questions At Conference Clinic Booths, May 11 and 12

Name of Company	Booth Assigned
Alco Valve Co., St. Louis, Mo.	70
American Brass Co. (French Small Tube Branch) Waterbury, Conn.	79
Ansul Chemical Co. Marinette, Wis.	81
Armstrong Cork Co. Lancaster, Pa.	88
Automatic Products Co. Milwaukee, Wis.	118-119
Brunner Mfg. Co. Utica, N. Y.	94
Bush Mfg. Co. Hartford, Conn.	112
Business News Publishing Co. Detroit, Mich.	58
Carrier Corp. Syracuse, N. Y.	69
Chicago-Wilcox Mfg. Co. Chicago, Ill.	
Convention Binder Service Chicago, Ill.	106
Curtis Refrigerating Machine Div., St. Louis, Mo.	96
Cutler-Hammer, Inc. Milwaukee, Wis.	61
Davison Chemical Co. Baltimore, Md.	113
Detroit Lubricator Co. Detroit, Mich.	91-92
Dole Refrigerating Co. Chicago, Ill.	71
E. I. du Pont de Nemours & Co. Wilmington, Del.	83-84
Henry Valve Co. Chicago, Ill.	107-108
Ideal Beer Cooler Co. St. Louis, Mo.	67
Imperial Brass Mfg. Co. Chicago, Ill.	115-116
Insulite Div. of Minnesota & Ontario Paper Co. Minneapolis, Minn.	
Jarrow Products Chicago, Ill.	66
Kerotest Mfg. Co. Pittsburgh, Pa.	89
Marlo Coil Co. St. Louis, Mo.	93
Jas. P. Marsh Corp. Chicago, Ill.	82
McIntire Connector Co. Newark, N. J.	72
Mills Novelty Co. Chicago, Ill.	105
Minneapolis-Honeywell Regulator Co. Minneapolis, Minn.	114
Modern Equipment Corp. Defiance, Ohio	85-86
Mueller Brass Co. Port Huron, Mich.	59
National Refrigeration Supply Jobbers Association	110
Pacific Lumber Co. Chicago, Ill.	
Penn Electric Switch Co. Goshen, Ind.	87
Ranco, Inc. Columbus, Ohio	90
Refrigeration Service Engineers Society	A
Spoehrer-Lange Co. St. Louis, Mo.	109
Stangard-Dickerson Co. Newark, N. J.	62
Superior Valve & Fittings Co. Pittsburgh, Pa.	68
Tecumseh Products Co. Tecumseh, Mich.	60
Temprite Products Corp. Detroit, Mich.	104
Utilities Engineering Institute Chicago, Ill.	63
Virginia Smelting Co. West Norfolk, Va.	57
Weatherhead Co. Cleveland, Ohio	
White-Rodgers Electric Co. St. Louis, Mo.	117
Wolverine Tube Co. Detroit, Mich.	103

War Problems Are Major Topics At Joint Industry Meetings

Monday, May 11th—9:30 a.m.
(Boulevard Room)

Singing of *"Star Spangled Banner"* and *"God Save The King."*

"What it Means to Be In TOTAL War"....Robert W. Horton, Director of Information, War Production Board.

"The Conservation Code of the Air Conditioning and Refrigeration Industry"....Dr. W. R. Hainsworth, President, A.S.R.E.

"Critical Position of Our Material Supply"..Harvey A. Anderson, Bureau of Industry Conservation.

"Substitute Material and Practices in Our Industry"
a. Tubing....George Franck, Imperial Brass Co.
b. Valves and Fittings....George Allen, Mueller Brass Co.

"The Refrigeration Service Engineers Part in the War Program"....(Speaker to be announced).

"What the Refrigeration Industry Means to the War Program"....George F. Taubeneck, Editor, Air Conditioning & Refrigeration News

Announcements of Afternoon Conference Clinics in Exhibition Hall—1:30 p.m. to 9:30 p.m.

Tuesday, May 12th—9:30 a.m.
(Boulevard Room)

Singing of *"Star Spangled Banner"* and *"God Save The King."*

"The Functions of the Air Conditioning and Commercial Refrigeration Branch of the War Production Board"....J. M. Fernald, Chief, Air Conditioning & Commercial Refrigeration Branch, WPB

"Military and Naval Requirements for Refrigeration and Air Conditioning"....Capt. David L. Fiske, Statistical Service, War Department

"The Refrigeration Wholesaler's Function in the War Effort"....(Speaker to be announced)

"Air Conditioning and Commercial Refrigeration Equipment in the Civilian Economy"....Henry A. Dinegar, Div. of Civilian Supplies, War Production Board

"What This War Is Requiring of the Refrigeration Industry"....A. B. Schellenberg, Alco Valve Co.

Question Box Period: (During this period those in attendance are invited to direct questions to any of the speakers. Please be brief and to the point.)

Announcements: Priorities Clinics for Manufacturers—Wholesalers—Service Engineers.
(Note: If you are interested in learning how to properly fill out priority forms, visit the Clinic Forum in Exhibition Hall on Monday at 2:30 where Priority men from manufacturers and wholesalers will be on hand to assist you.)

Conference Clinics in Exhibition Hall
1:30 to 5:30 p.m.

Tuesday, May 12th—7:30 p.m.
All-Industry Banquet (Grand Ball Room)

Singing of the National Anthem.

Orchestra and Singing
During service of banquet dinner.

Address: "DEMOCRACY"....Dr. Preston Bradley, Chicago.

Adjournment.

NINE VOLUMES OF IMAGINEERING

THESE NINE BOOKS are designed to help all men, everywhere, do the Imagineering that improves methods of production and speeds delivery to our fighting men of all war materiel made of aluminum.

HERE AT ALCOA, Imagineering has enabled us to double production and to be well on the way to tripling it, in an amazingly short time. And still the expansion goes on. Swinging immense new plants into top volume at top speed;

building again, and manning that new capacity efficiently . . . This is Imagineering at work for the war.

WE'RE BREAKING RECORDS by sheer determination backed by know-how.

YOU'RE DOING THE SAME. Perhaps your men, many of them new to the ways of working with aluminum, can help you get even more speed through the know-how these books contain.

IN THE DAYS when we made only a driblet of Alcoa Aluminum Alloys, compared to the great flood we are now pouring into the war effort, our engineers could counsel with you personally on fabricating procedures. Today many of these men have been brought back to our plants to join the drive for production. From these books you can get much of the know-how our men used to bring you personally.

OUT OF THESE PAGES, too, will come the exciting Imagineering of the future. Many of the products you will create to meet the new competition, *as well as* millions of jobs for our boys as they come home, will stem from that Imagineering.

Aluminum Company of America, 1975 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

ALCOA

★ SO MUCH SO SOON ★

REFRIGERATION CONTRACTORS...

WE BUILD

SPECIAL SIZE COOLING ROOMS FOR YOU AND FOR YOU ONLY!!

LONG AND NARROW

AROUND BEAMS AND COLUMNS

IRREGULAR SHAPES

SPECIAL SIZES AND HEIGHTS

Yes, that's Right—any length, any width, any height, and to any specifications! And, you don't have to pay a premium price, either. Try us next time you run onto a job where standard sizes are too large or too small for the available space. . . . . Remember, too, this "specials" service enables you to earn a profit on the whole job—on the box as well as the machinery! Prompt shipments, not over two weeks. . . . . Our quick-figuring price list enables you to estimate "on-the-spot" and you set your own profit. Write for it today.

ALBERT H. BROMANN, JR.
820 NORTH CICERO AVENUE, CHICAGO, ILLINOIS

Wolfert Will Direct Westinghouse Staff At E. Springfield

EAST SPRINGFIELD, Mass. — Edward R. Wolfert has been named to head all engineering activities of the East Springfield plant of the Westinghouse Electric & Mfg. Co. He will report to J. H. Ashbaugh, manager of manufacturing and engineering of the merchandising division.

Mr. Wolfert has won national recognition for his work as a refrigeration and air conditioning development engineer, and was awarded a "Modern Pioneer" certificate in 1940 by the National Association of Manufacturers for his research in air conditioning. He was primarily responsible for the introduction of hermetically sealed compressors in large-sized air conditioning units. He holds 22 patents in feeder regulator design, electronic tube devices, and air conditioning.

He joined Westinghouse in 1923 and began his connection with air conditioning work in 1933 when he designed equipment for the Illinois Central Railroad. In 1940 he was appointed assistant manager of the merchandising engineering department, in charge of defense work, air conditioning, commercial refrigeration, and drafting.

Stangard Cold Plates Explained In Catalog

NEWARK, N. J.—A comprehensive catalog covering many applications of cold plates has just been issued by the Stangard-Dickerson Corp. here. Uses of cold plates in locker plants, ice cream cabinet conversion, soda fountain and various dispensing applications, liquid coolers, and truck refrigeration are treated in special sections of the catalog.

The book includes a technical data section of value to refrigeration engineers, dealers, jobbers, and salesmen. Copies of the catalog may be obtained from Stangard-Dickerson Corp., 46-76 Oliver St., Newark, N. J.

G-E Supply Takes Over Conditionaire Co.

MINNEAPOLIS—A. S. Dunning of G-E Supply Corp. announces that this firm has absorbed the franchise for automatic heating and air conditioning equipment as well as commercial refrigeration formerly handled by Conditionaire Co. in St. Paul.

These lines in the future will be sold by G-E Supply salesmen over the northwestern Minnesota territory. Aiding will be C. J. Searle, head of the former Conditionaire commercial refrigeration department, and five refrigeration service men who transferred to G-E Supply along with the franchise.

Wassmansdorf Directs G-E Plastics Adv.

PITTSFIELD, Mass.—Paul Wassmansdorf began his new duties April 15 as advertising manager of the General Electric Co., appliance and merchandise department's plastics division here, W. H. Milton, Jr., plastics division manager, announced.

W. D. Haylon, former manager of plastics division advertising, is now serving with the U. S. armed forces.

Mr. Wassmansdorf left the appliance and merchandise department's advertising division in Bridgeport, Conn. for his new post. He has been associated with G-E for six years, part of which was in advertising and sales promotion at Schenectady, N. Y. He attended Union College, Schenectady, on a G-E Steinmetz scholarship.

Cotton Plantation Opens Own Locker Plant

WILSON, Ark.—The Lee Wilson Co., cotton plantation operator, has opened a new 300-unit locker plant which will serve sharecropper families on the plantation and neighboring farmers, Lee Wilson, manager, announced.

Modern Equipment Changes Its Name

DEFIANCE, Ohio—Modern Equipment Corp., manufacturer of "Par" commercial refrigeration compressors, will henceforth be known as the Lynch Mfg. Corp., according to an announcement made by M. H. Pendergast, executive vice president of the Lynch Corp., parent corporation.

The Morris Packing Equipment Co. had first been merged into Modern Equipment Corp., and the corporate name changed to Lynch Mfg. Corp.

The general offices of Lynch Mfg. Corp. are in Defiance, and the firm will continue to operate plants at Defiance and Toledo. There will be no other changes in operations or personnel, Mr. Pendergast declared. Lynch Mfg. Corp. continues to be a wholly owned subsidiary of the Lynch Corp.

Principal products are "Par" refrigeration compressors, "Par" air compressors, Wrap-O-Matic wrapping machines for the confectionary industry, and Morpac printing, wrapping, and cartoning machinery for the butter and margarine industries.

The consolidated report of the Lynch Corp. for 1941 showed net profits of $518,678, equal to $3.45 per share on sales of $3,158,873. This compares with net profits of $290,845 or $2 per share on sales of $1,988,625 in 1940.

'Frisco Dealers Set $3.50 Service Rate

SAN FRANCISCO—Radio and appliance service rates here have been boosted by many dealers from $2.50 to $3.50, as the result of the need for higher pay for servicemen. Twenty dealers who maintain refrigerator, small appliance, and radio service have set the $3.50 figure as a minimum rate, justifying it with a half-page newspaper advertisement announcing the change in rates, and explaining that without the higher charge, no service can be obtainable at all.

Overlock Directs WPB Office In Chicago

CHICAGO — Joseph L. Overlock has been appointed Chicago regional director of the WPB. The Chicago regional office, one of 13 being established in various sections of the nation, will administer all of the WPB field offices in Illinois, Indiana, Iowa, and a portion of Wisconsin.

Directors of other regions previously appointed are Orville H. Bullitt in Philadelphia, Ernest Kanzler in Detroit, Frank H. Neely in Atlanta, and John C. Virden in Cleveland.

Mr. Overlock has been actively associated with the war production program since April, 1941, when he was named Deputy Assistant Director of Priorities of OPM. During the last several months, Mr. Overlock has been serving as State Director of the Contract Distribution Branch in Illinois, a position which has given him an intimate knowledge of the production facilities in the area.

Universal Cooler Has Profitable Quarter

MARION, Ohio—Net earnings reported this week by Universal Cooler Corp. here for the first quarter this year amounted to $23,878 in contrast with a net loss of $106,383 during the same period last year. This year's three-month profit is equal to 24 cents each on 101,078 shares of $1 Class A participating stock.

The six montns up to March 31 show a net profit of $27,722, or 27 cents a share on Class A stock, as against a $174,083 loss for the same period last year.

Dunn & Alexander Buy Salinas Appliance Co.

SALINAS, Calif.—The Valley Appliance Co., formerly operated at 410 South Main St. here by Edward Newfield, has been sold to M. A. Dunn and J. A. Alexander, who will operate as Salinas Valley Appliance.

THE MANUFACTURER . . . saves production time. Where it formerly took six hours to glaze a cabinet in a certain plant, it now takes but one with Thermopane units. Much time is saved by the elimination of cleaning and polishing between panes. Thermopane is supplied already clean, ready to install.

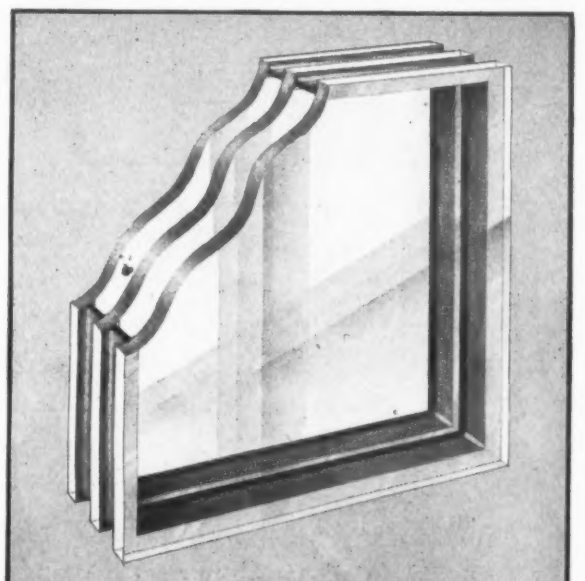
DEALERS AND DISTRIBUTORS . . . get fewer complaints, make fewer service calls with Thermopane. The air locked between the hermetically-sealed panes is dry and STAYS dry. There can be no condensation between the panes to "fog up" the glass. No need to dehydrate the air space periodically or to drive out moisture with heat.

THE FOOD STORE . . . gets better display of merchandise because Thermopane does not "fog up." And the lights of highest quality Libbey·Owens·Ford Polished Plate Glass provide extra clarity. They're easier to see through, better to sell through. Better insulating properties also cut operating costs.

THE SHOPPER . . . can see inside more clearly, select what she wants more easily. This is especially important in "Self-Serve" frozen food cases and reach-in dairy boxes.

GET COMPLETE INFORMATION

For full details about Thermopane Glass and technical advice on its application in their cabinets, manufacturers of commercial refrigerators are invited to write Libbey·Owens·Ford Glass Company, 1339 Nicholas Building, Toledo, Ohio.



AN AIR-CONDITIONED SANDWICH

Thermopane is a glass unit consisting of two, three or more panes of glass, separated by ¼ inch or ½ inch of captive dehydrated air, and sealed around the edges by an air-tight metal seal. Shipped to refrigerator manufacturers ready to install.

LIBBEY · OWENS · FORD

Thermopane

"BETTER SEEING MEANS BETTER SELLING"

Wolverine Tube Co. Sale Is Approved

DETROIT—A proposal to accept an offer by Calumet & Hecla Consolidated Copper Co., good until June 1, to purchase the assets of the Wolverine Tube Co. here for $2,690,-361 was approved by 80% of Wolverine stockholders at their annual meeting Wednesday (April 29). Ten percent of the stockholders opposed the sale, while 10% did not vote.

The sale proposal, as outlined to stockholders by Charles C. Limbocker, president, contemplates that Calumet & Hecla will purchase all assets, subject to liabilities, "other than deficiencies in prior years' Federal taxes, if any" of Wolverine Tube Co. for cash.

He stated that the board of directors intends to redeem the preferred stock at the redemption price of $105 per share, plus all dividends accrued thereon to the date of redemption. The board will distribute the remaining proceeds of sale after payment of expenses and costs of dissolution pro rata among common stockholders, which, it is estimated, will be approximately $6.50 per share.

Action by directors is necessary to complete the sale, but, unless some unforeseen contingency occurs, such action will be taken by the board after 20 days have elapsed. The board unanimously recommended the sale to stockholders.

A Michigan statute provides that dissenting stockholders be allowed 20 days following the annual meeting to ask for an appraisal of the company's assets.

Heads Cooling Sales

J. P. McILHENNY
Recently appointed sales manager of the General Electric air conditioning and commercial refrigeration department.

M-H Quarter Profit Was $669,931

MINNEAPOLIS — Minneapolis-Honeywell Regulator Co. has a net profit in the first quarter this year of $669,931, after providing $919,341 for estimated Federal excess profits taxes. Net profit for March quarter in 1941 before provision for Federal profits taxes was $554,124.

The net profit was reported after quarterly dividend requirements.

Defense Group Has Lecture on Plasma

ANNAPOLIS, Md. — The importance of electric refrigeration to freeze blood plasma used for the U. S. armed forces was stressed by a representative of the drug company which manufactures plasma for the forces, at a civilian defense meeting held at St. John's college here to show the aspects of casualty station emergency treatment.

The speaker described the process by which the pints of blood taken from donors are whirled in a centrifuge which precipitates the red and white cells and ⅞ of the platelets. After the upper half is siphoned off, the remainder is frozen at —75° C.

Next, the frozen mass is dehydrated under vacuum. Throughout the entire process, laboratory checks are made for sterility, while any infected blood is rejected, it was explained.

The box of plasma contains two cylinders, one holding the dehydrated blood plasma under vacuum and the other a bottle of distilled water with which to mix the plasma, he stated.

Allen-Bradley Moves Chicago Office

CHICAGO—The Allen-Bradley Co., manufacturer of electrical motor control equipment, has moved its Chicago office to new quarters at 624-630 W. Adams St. here, it was announced. John McC Price remains in charge as district manager.

Substitution For Critical Materials May Get 'Priority' Business Even Where Price Is High

That's What They've Found At Electric Products, Inc. Which Has Amazing Variety of Jobs For the War Effort

JERSEY CITY, N. J. — Because they had "keyed up" their firm's business to jobs directly connected with the War Effort even before Pearl Harbor, members of the staff of Electric Products, Inc., commercial refrigeration distributorship here, now has 95% of its contracts on a priority basis.

Paul B. Hughes, vice president of the company, assigns no one reason for the success which his company has attained in getting priority business on refrigeration installations, other than the directing of efforts toward this end by the management.

Practically all of this priority business is written by P. B. Hughes, R. L. Hughes, and L. F. Alexander, each man handling his own contracts, and laying out and following through the job to completion.

Edwin J. Stoll, secretary of the company, was nominated the "priorities expert" for the firm as soon as priorities came into existence, and thus has been able to expedite the "paper work" which is a problem in contracts involving priorities.

Actual installation is under the direction of Arthur Gronross, service and installation manager.

Steel for Copper

One factor that has given Electric Products, Inc. the jump on competition, perhaps, is that steel or the new Bundy steel and copper tubing is used wherever possible, thus allowing for the saving of critical materials. Mr. Hughes believes that practices like these have gained jobs for the company in cases of negotiated bids even though their price might not have been the lowest.

The refrigeration equipment in contracts now under way runs from ¼-hp. jobs for the small Day & Night water coolers for the cafeterias and ice cream cabinets, up to 10 hp. for mess halls, cold storage rooms, etc.

Types of Jobs Done

These are some of the "War Effort" installations now being made by Electric Products, Inc.:

Naval drydock—complete cafeteria equipment and low temperature applications.

Marine barracks—cafeteria equipment.

A War production plant—complete cafeteria equipment and water cooling.

Marine division, a large oil company—refrigeration for 60 sea-going tankers.

Naval debarkation base — meat freezing and cold storage plant, tracking and coolers.

Army debarkation base—refrigeration and cold storage equipment for mess halls.

A War production plant—cafeteria and low temperature applications in four plants. Cold storage equipment for a kitchen.

An Airways company—deck freezers, cafeterias, knock-down meat storage rooms, cold storage equipment, canteen equipment, and process freezers.

A War production plant—general refrigeration and beverage cooling.

An Army camp—66 mess halls and cold storage rooms.

An Ordnance plant—low temperature for testing machine guns, cafeteria equipment, water cooling, and industrial freezer units.

Celotex Produces a Low-Temp Insulation From Sugar Cane

CHICAGO—A low-temperature insulation made from sugar cane stalks, and claimed to match corkboard in insulating efficiency, has been developed by The Celotex Corp. here.

This new product was developed when Bror Dahlberg, Celotex president, set the company's research men to seeking a satisfactory low temperature insulation that could be made from some product available in the U. S.

Celo-block Insulation, as the product is known, is available for quick delivery.

The sugar cane fibers are mixed in selected lengths and thicknesses, then woven and felted into ½-inch insulating boards of a special low density.

For protection against moisture the individual fibers, before being felted into boards, are sterilized, waterproofed, and then protected from dry rot and fungus growths by the patented Ferox process.

To provide further resistance against moisture, the ½-inch boards are laminated together with weather-resistant special asphalts between layers. An additional coating of asphalt is then applied to the outer surfaces. Thus, a 2-inch thickness of insulation has five moisture-resistant asphalt membranes, one on each outer surface and three between the ½-inch cane fiber boards which make up the overall thickness.

Puncture of the outside membrane exposes only the first ½-inch thickness of insulation to moisture penetration. The company believes this characteristic is particularly valuable for emergency wartime construction.

Celotex Celo-block insulation has a thermal conductivity of .30 B.t.u. per inch, per sq. ft., per hour, per °F. It is manufactured in three thicknesses, 1½ inches, 2 inches, and 3 inches, and in two sizes, 18 x 18 inches, and 18 x 36 inches.

It is applied in the same manner as corkboard insulation.

Dependable, Economical

CURTIS REFRIGERATION

Has Never Been So Important As It Is Today

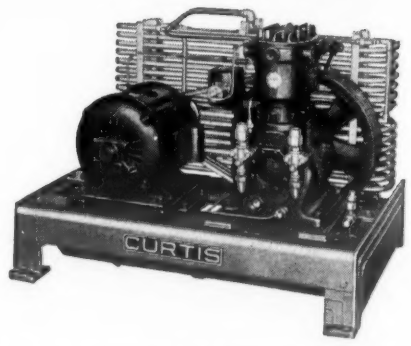
Never before has it been so vital to conserve food products, to prevent waste and spoilage through proper preservation. Our greatly increased food production, the "Food For Freedom" program, demand efficient, dependable refrigeration to conserve foodstuffs so as to take care of both military and civilian needs.

The high efficiency and steady, continuous dependability of every Curtis Condensing Unit assures not only correct humidity and temperature control for effective food preservation, but economical operating costs as well.

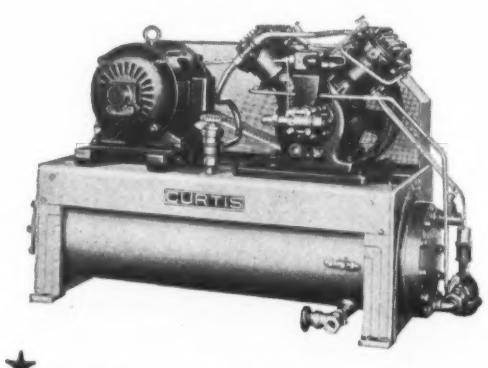
Curtis Condensing Units are available in a wide range of types and sizes, from fractional horsepower models up to 30 tons, air and water cooled.

Precision construction, careful engineering, and Curtis' 88 years of successful manufacturing experience are your assurance of complete satisfaction.

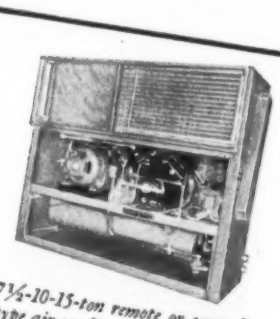
Although priority restrictions have limited our ability to serve ordinary and civilian needs to the fullest possible extent, your orders carrying priority ratings will be handled on a corresponding preference basis.



★ 5 H.P. water-cooled (counter-flow type) condensing unit.



★ 15 H.P. water-cooled (shell and tube type) condensing unit.



7½-10-15-ton remote or central type air conditioner. Also 3 and 5-ton packaged models.

CURTIS REFRIGERATION AIR CONDITIONING and COMMERCIAL

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1912 Kienlen Avenue St. Louis, Missouri

DFN SYSTEM

DEHYDRATORS—FILTERS—STRAINERS OF ADVANCED DESIGN AND CONSTRUCTION

Efficient — Adaptable — Original

McINTIRE CONNECTOR COMPANY
NEWARK, N. J.

Optical Plant Producing War Equipment Air Conditioned To Fit Department Needs

Building 'Sealed' To Prevent Infiltration of Dust

By T. H. Mabley, Chief Engineer, Mechanical Heat & Cold, Inc., Detroit, Mich.

With constant demands for increased production and improved efficiency, and in plant design for the defense industries, air conditioning, in many cases, has helped management solve a good many difficult problems. A typical example where air conditioning has become essential to accurate production is demonstrated in a recent defense plant constructed in the Middle West, part of which was completely air conditioned with specific temperature and humidity control.

The balance of the building was heated, with an air conditioning system allowing provision for complete air conditioning at a later date.

This building is to be used to produce telescopes and other optical instruments for the armed services. The front portion of the building, which is used for private offices, is standard masonry and steel window construction. In order to assure independent control for heating, radiators were used under each window.

Stressing all efforts toward improved production, air conditioning was used only in the factory. The factory space was made up of three main zones.

The first two zones, namely the polishing room and machine shop, were heated and ventilated by means of a winter air conditioning system consisting of a large air conditioning unit installed in each zone complete with air duct work system to properly distribute the air over the entire area. These units provide controlled heating, humidification, filtration, and ventilation of the respective areas. Provision is made in the system for the installation of refrigerating equipment to provide cooling at some later date.

FOR THE MACHINE SHOP

The control system in these two zones is set up to take advantage of the natural cooling effect obtained during cool summer evenings. The air conditioning units are designed to handle a large volume of air, rapidly changing the air in the conditioned space with a minimum of 12 air changes per hour. It is anticipated that during such nights, when the temperature drops below the desired inside temperature, some cooling effect may be obtained by reducing the inside temperature with a 100% outside air.

The control system is also designed to introduce outside air during the summer period whenever the outside temperature drops below the inside temperature. This, of course, is limited by a low temperature controller, but unlimited on the upward range, thus keeping the coolest conditions possible in the area without the use of refrigeration.

In the third area, which is used for the assembly room, the conditions are very carefully maintained, both from the standpoint of temperature and humidity. Furthermore, very careful control of the air dust contamination is obtained by use of electrostatic air filters.

ASSEMBLY ROOM COOLED

The air conditioning system for the assembly room is similar to that used in the other zones, with the addition of refrigeration used to assure a maximum limit of 80° during the summer months. Another feature includes a Westinghouse Precipitron air cleaning unit having a capacity of 9,000 c.f.m. at 90% efficiency. This air cleaner is installed ahead of the conventional throw-away type filter pads. The purpose of installing the conventional pads is to indicate any contingency condition immediately, should the air cleaner become inoperative.

Entire system for this zone is automatically controlled the same as other zones with the addition of the high limit temperature control which operates the refrigeration equipment. This eliminates the cooling by ventilation feature which is not required where refrigeration is used.

The use of air conditioning permits the entire room to be built of solid masonry construction, thus eliminating any dust infiltration from the outside. The walls are sealed with caulking and other sealing paints. All openings are protected with air lock and a double relief damper is provided for exhaust air. In order to assure a minimum introduction of dirt on the clothing of employes, special uniforms are furnished and unusual precautions taken in this respect.

The air conditioning system furnishes adequate fresh conditioned air to insure ideal air conditions for the efficiency of the employes as well as for the protection of the work being performed in the conditioned area.

After the system has been put into operation, it is expected that the results will show such a large contribution to the production in the one area which is completely air conditioned, that the year around air conditioning may be extended to the balance of the building.

Service Rate Raised To $2

BATON ROUGE, La.—Former flat rates for service calls on domestic refrigeration of $1 have been raised to $2 by 13 appliance dealerships and service firms here, according to a recent announcement by Refrigeration, Inc., Carrier air conditioning dealership and service firm here.

'Smoke Rings' From Factory Stacks New Air Defense Weapon?

BUFFALO — Those lazy, floating smoke rings that ingenious smokers often blow into the air contain a secret that potentially may free cities from ugly smokestacks and industrial smoke as well as give the nation a new defense weapon against high flying airplanes.

These possibilities were raised by Dr. Phillips Thomas, research engineer of the Westinghouse Electric & Mfg. Co., who discussed recent experiments with the "smokering" principle before the Air Conditioning Council of Western New York in a recent meeting of members in Turner Hall.

Dr. Thomas explained that the parlor-variety of smoke ring is a whirling vortex, which, while in motion, remains intact and does not leave a smoke trail.

Using a mechanically operated whirlwind maker, Mr. Thomas created a half-dozen perfectly formed smoke rings, then explained:

"Laboratory scientists are studying the possibility of employing this on a large scale—of artificially creating powerful vortex rings that would blow factory smoke in giant puffs high into the atmosphere."

Touching on the possibility of air rings as defense weapons, Dr. Thomas pointed out that an air ring going at the rate of 60 miles a second would be sufficiently powerful to tear a hole in a wall or knock off an airplane wing.

290-Ton System Is Installed For a New Eastman Lens Process

ROCHESTER, N. Y. — Production of a radically different type of glass with increased capacity for bending light rays by the Eastman Kodak Co. in its new Hawkeye plant here is being aided by the installation of a 290-ton Carrier Centrifugal unit with turbine drive which air conditions three floors.

The revolutionary new glass goes into lenses designed by the U. S. Government and is believed to be used for aerial photography.

The installation in the Hawkeye plant is the third by the Syracuse office in two years.

Refrigeration Tax Drops In March

WASHINGTON, D. C.—Excise tax collections on mechanical refrigeration and air conditioning equipment totaled $1,578,921.90 during March compared with $1,816,091.28 in the same month of 1941, according to Bureau of Internal Revenue statistics released this week.

Collections on radios, parts, and phonographs amounted to $2,046,-024.66 as against $485,052.82 in March, 1941, while taxes on phonograph records accounted for an additional $135,226.78. Electric, gas, and oil appliances brought in $1,979,-544.34 and washing machines, $26,-509.37 during March.

Baltimore Art Museum Offers 'Conditioned' Music Via Ducts

BALTIMORE—That an air conditioning system has an aesthetic as well as a ventilating value was aptly demonstrated recently when the Baltimore Museum of Art's system exuded "conditioned" music along with air from the openings of air conditioning ducts.

Leslie Cheek, Jr., museum director, feeling that the overwhelming stillness and vast emptiness of a museum needed "filling up," used 20 loudspeakers hidden in the air conditioning plant to spread background music appropriate to the art exhibits throughout the museum. He termed the experiment a definite success.

Nine musical records were played, while the tenth explained reasons for the novel sound system and how it was financed by part of a $10,000 grant from the Carnegie Corp. of New York.

"Conditioned" music will now be a permanent part of the museum's program and will vary with the types of art displayed, according to Mr. Cheek.

New Pittsburgh League Head

PITTSBURGH—Pittsburgh Electric League with headquarters in William Penn hotel is continuing under a new directorship, with W. D. Shaler now in charge. The "Electric Leaguer," published by the League, has been discontinued.

. . . full speed ahead . . .

for the Food Fleet . . . cargoes of square meals . . . the kind of grub the boys deserve. And no matter how long the voyage their food will be delivered as fresh as the day the convoy sailed.

Fresh Food for every Front

TURNING OUT refrigeration and air conditioning equipment for hundreds of fighting ships and merchant vessels . . . for Army camps and bases . . . and for America's food industry . . . is a vital war task shouldered by the men and women of Carrier.

Familiar Carrier equipment—refrigerating machines, cold diffusers, air conditioning units and unit heaters—are being produced at Carrier to help win the battle of food.

But the needs of war are spurring the development of completely new refrigeration and air conditioning equipment, too.

Practically all of these will have important peace-time applications . . . will greatly broaden future markets. Today, naturally Carrier's production is for vital war needs. But the war-born expansion and developments of Carrier Air Conditioning and Refrigeration today are making new sales opportunities for the future.

VITAL WAR PRODUCTION SPEEDED BY CARRIER

Grinding Wheels · Polishing Cloths · Bomb Storage · Fuse Loading · Percussion Elements · Powder Drying · Primers · Solvents · Tetryl · Tracer Composition Chlorine · Synthetic and Natural Rubber · Safety Glass · Blast Furnaces Refrigerants · Photographic Equipment and Supplies · X-ray Films · Maps Blood Banks · Operating Rooms, Research and Testing Laboratories (chemical, electrical, radio, physiological) · Airplane Engines and Parts · Tools · Timing Mechanisms · Precision Instruments · Copper Mining · Pharmaceuticals Plastics · Parachutes, Powder Bags, Uniforms · Black-out Plants.

The Navy "E"—one of the U. S. Navy's most coveted honors was awarded to Carrier Corporation for excellence in war production.

Carrier Air Conditioning

Carrier Corporation, Syracuse, New York

WEATHERMAKERS TO THE WORLD

Cooling Permits Draftsmen To Work at Top Efficiency, Saves Drawings, Says Iron Works Firm

ERIE, Pa.—The manifold benefits of air conditioning in today's crowded engineering drafting rooms is well demonstrated in the experience of the Erie City Iron Works, a company well loaded with War work.

This firm, which has a Carrier air conditioning system, comments:

"Because of the shortage of draftsmen and engineers, we now are working our drafting room seven days a week and as many nights as the men find they can carry on.

"With the temperature around 90 and the high humidity that characterizes our climate, it would be impossible to get the work out of the draftsmen that we can by keeping temperatures in the 70's.

"What heat and humidity do to a draftsman's comfort are painfully obvious. But there are other problems. Dust means dirty drawings, poor blue prints, constant cleanup. High humidity causes perspiration and difficulty in holding pencils. Hands and arms stick to drawing paper. Drops of sweat spot drawings. Humidity changes stretch or shrink paper. Then there's constant retacking, poor register in tracing, and changes in scale."

Nash-Kelvinator Nets $672,360 In Quarter

DETROIT—Nash-Kelvinator Corp. reports for the quarter ended March 31, 1942, net profit of $672,360. This is after all charges, including provision for income tax, and compares with $885,153 for the previous quarter and with $1,040,527 for the corresponding quarter of the previous year.

For the first six months of the current fiscal year, starting Oct. 1, 1941, net after all charges is $1,577,514 as compared with $1,127,657 for the preceding first half-year period.

Six months reservation for income tax is $973,000 as compared with $307,000 for the same period of the previous year.

Specialists In Grinding Find Air Control Helps

LOS ANGELES—Air conditioning is aiding in the completion of parts for the War Production machine in grinding room of Axelson Mfg. Co.

Because of the close tolerances needed for the delicate precision parts going into equipment used in the War Effort the Axelson Co. specified that the room, 75 x 20 feet and filled with high speed grinding equipment and the motors to run them, be maintained at a temperature of 68° F. with 40% relative humidity.

The system that maintains these units without variation is a 20-ton Carrier refrigerating machine and air handling apparatus that provides 6,000 c.f.m. for the room.

REFRIGERATION—*The New Machine Tool*

(Concluded from Page 1)

Let's look at the record of refrigeration at war:

Airplanes and their engines: rivet cooling, parts machining, coolant refrigeration, propeller processing, cooling of welder electrode tips, paint and dope application, inspection and assembly, drafting rooms.

Right here let's take time out to show another way in which refrigeration *speeds up* war production—through reduction of the number of rejects. The closer the tolerances, the higher the percentage of rejects—usually. But with the aid of refrigeration and air conditioning, parts formerly produced under different temperature and humidity conditions now come out uniform. Parts machined in New Orleans and Minneapolis can be assembled in Tulsa without a hitch. Nor, with air conditioning, do parts machined at 1:00 p.m. vary from those turned at 4:00 a.m.

Abrasives, so important in all machine work, can be processed much faster now, because refrigeration insures product uniformity and prevents drying out of glue on sandpaper.

Ammunition is now being produced at phenomenal rates, and again refrigeration has helped. Here's what refrigeration and air conditioning help do: prevent explosions, control static electricity and humidity, fix rate of burning, make weighing accurate, insure precision of parts.

Instruments for tanks and planes and ships—many of which are being produced by this industry, require refrigeration and air conditioning for precision and tolerance control, elimination of dust and condensate, and product uniformity in processing, inspection, and assembly. Here is a case where refrigeration is not only a *speed-up,* but a downright necessity no matter what the speed.

Laboratories: We must defeat Hitler and Hirohito not only with overwhelming quantity of lethal weapons, but with quality those assassins can't match, and with new things they don't have. Laboratories are needed here, and laboratories need controlled weather conditions—which means air conditioning and refrigeration. These NEW MACHINE TOOLS are also useful in assaying, crystallization, and testing operations.

Electrical and radio products—their number is staggering—also need the help of this industry for tolerance control, dust elimination, and prevention of damage by perspiration.

Now let's look at synthetic products—the field in which Hitler got so great a jump on us. Take the most dramatic:

Synthetic rubber. Without refrigeration in certain steps of the processing, you couldn't turn it out. Even natural rubber from our stockpile needs refrigeration for roller cooling, for processing and curing.

Gasoline and other petroleum products require refrigeration for octane control, performance determination, uniformity, testing, and processing.

Quickly, let's run over some of the other industrial products *for war* in which refrigeration and air conditioning play a vital production role: chemicals and pharmaceuticals, photographic film, glass, lenses, plastics, paints and lacquers, paper, steel, nylon and rayon, telephone exchanges, textiles.

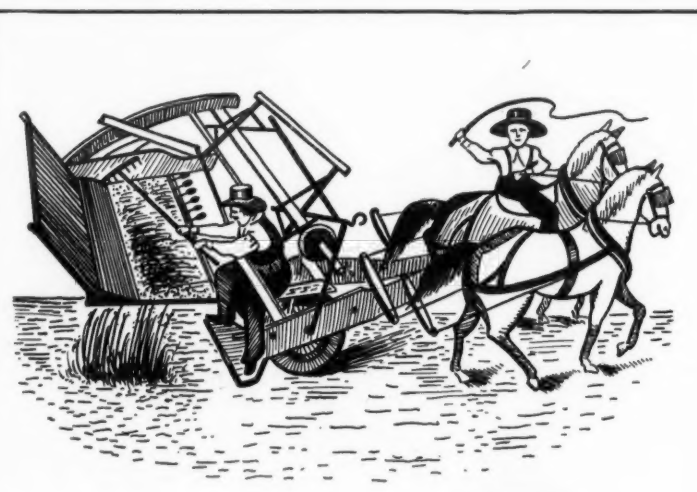
Steel is a well-known and dramatic example of how air conditioning is speeding output. Blast furnaces which have installed air conditioning are breaking world records for production now. Installation of air conditioning has made it less necessary to build new blast furnaces, because we now get more out of what we have, and get it faster and without using up vital materials.

Over and over again we have heard such war cries as "Time Is Short," "Too Little and Too Late," "We Have Plenty of Everything But Time." To answer these cries, refrigeration and air conditioning—formerly thought of simply as useful for food protection and human comfort—have come along to show industry *how to save time, how to speed up war production, how to do more with what we have.*

You will note that so far we haven't mentioned food. Refrigeration, of course, is absolutely essential if soldiers, war workers, all of us, are to go on eating. That's the big use, the obvious use, and the most vital use. But these industrial uses are *news,* perhaps the biggest news yet to be heard from the Production Front.

When the history of this war is finally written, it may finally be told how important was this industry's contribution. Truly, we are all helping to WIN THE WAR and WIN IT FAST!

GEORGE F. TAUBENECK



1831 Cyrus Hall McCormick, son of a Virginia farmer, revolutionized agriculture throughout the world by his invention of the reaper, which is said to have made America the granary of the Old World. The reaper was first demonstrated at Steel's Tavern, Virginia, in 1831.

1942 Today, the refrigeration industry is making even greater changes in the field of agriculture than did McCormick's reaper. Refrigeration bridges Nature's seasons and the barriers of time and distance to provide us with more health-giving foods and greater comforts, too. Refrigeration plays a stellar role in building a more livable world—the kind of world worth fighting for.

BUY YOUR KINETIC'S FREON-12* VIA VIRGINIA *Reg. U. S. Pat. Off.

EXTRA DRY ESOTOO · Methylene Chloride · V-METH-L

VIRGINIA SMELTING CO.

Located at tidewater

WEST NORFOLK, VIRGINIA

V VIRGINIA

DEPENDABLE FITTINGS .. *a vital necessity Now!*

● Refrigeration accessories are scarce and will become increasingly more so as time goes on. There are many things you will not be able to get that you must devise ways and means of accomplishing the purpose through your own ingenuity. In short, you must make serve those things which you can get rather than those things which you would like to have—and, above all, the products you are able to procure must be reliable.

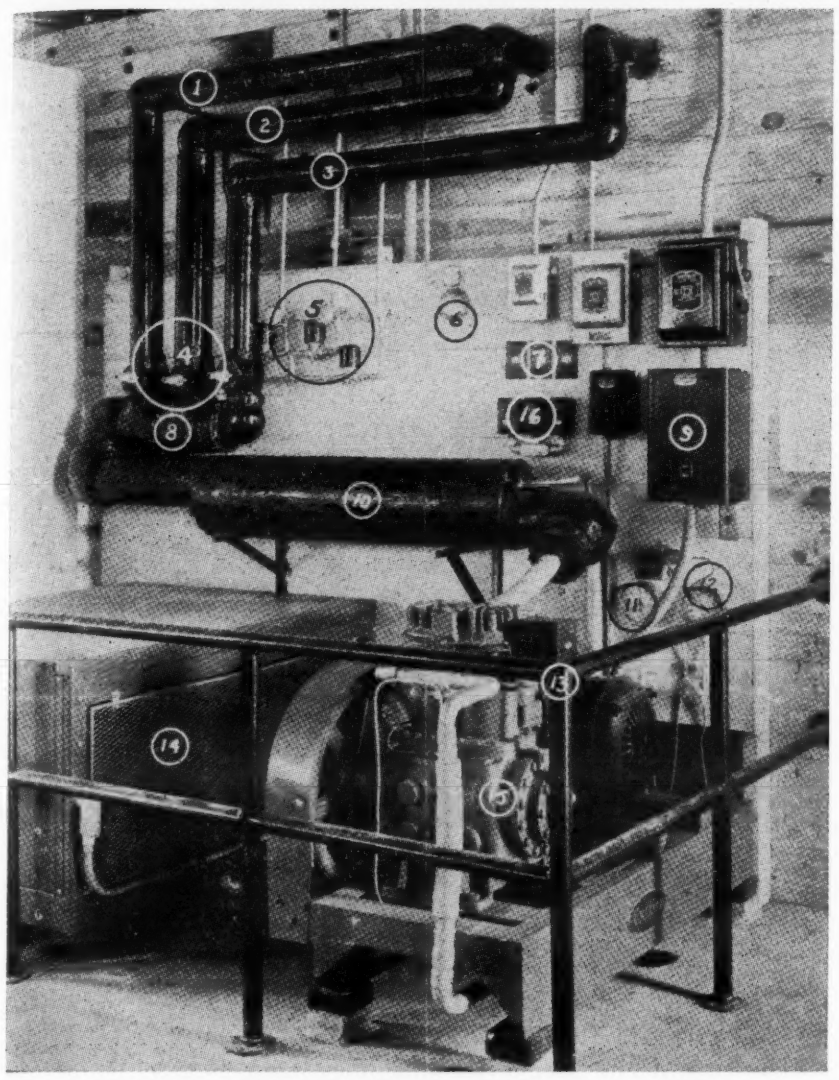
MUELLER BRASS CO. REFRIGERATION PRODUCTS ARE TIME-TESTED AND DEPENDABLE, and their quality now means more than it ever did before.

MUELLER BRASS CO.

PORT HURON, MICHIGAN

STREAMLINE

How It's Done For the Army



This SH-9 (Government specification) warehouse installation made by Air Conditioning, Inc., a Carrier dealer, at the U. S. Air Base, Jackson, Miss. can be studied to great advantage by other dealers who may do jobs for branches of the armed forces. In this interesting hook-up pipes go (1) to dairy, (2) vegetable and (3) meat refrigerators. (4) Hand shut-off valves. (5) Liquid line solenoid and shut-off valves. (6) Alarm bell. (7) Special pilot light. (8) Manifold. (9) Automatic switch controlled by impulses from thermostat. (10) Heat interchanger. (11, 12) Pressure gauges. (13) Guard railing. (14) Carrier 9S5 evaporative condenser. (15) Carrier 7H5-75EF compressor. (16) Special fan switches.

Westinghouse War Orders $300,000,000 In '42

PITTSBURGH — Westinghouse Electric & Mfg. Co. has received governmental orders for the Army, Navy, and Maritime Commission since the first of the year totaling approximately $300,000,000, George H. Bucher, president, announced at the annual stockholders' meeting.

"Our number one job has been the production of electrical equipment essential to every branch of national defense," Mr. Bucher stated. "The war is young. As it grows, conditions affecting industry, including the Westinghouse company, will not grow easier," he warned.

Mr. Bucher pointed to priority allocations, government control of serious labor disputes, and government inspection of work to illustrate the extent to which industrial management is affected by present wartime conditions.

Stockholders re-elected four directors for a four-year term: Frank A. Merrick, vice chairman of the company; Roscoe Seybold, vice president and comptroller; John M. Schiff, of New York City; and George M. Verity, of Middletown, Ohio. Paul J. Myler, chairman of the Canadian Westinghouse company board, was selected director for one year to fill a vacancy.

Engineers Devise a Foolproof System To Safeguard Contents of Blood Bank

Refrigeration Technicians Construct Alarm System To Warn of Critical Rise In Temperature

DETROIT—Latest of the series of scientific advances that are extending America's lifeline around the world through the American Red Cross are new Detroit-developed engineering devices that help provide absolute protection for the precious blood supplies being collected by the organization.

Developed at the instigation of Dr. Warren B. Cooksey, director of Detroit blood procurement activities of the Red Cross, by Nash-Kelvinator refrigeration engineers, the ingenious new devices warn refrigerated blood bank operators immediately of power failure or any other factor that might alter the exact temperature under which the blood and serum is stored.

Two warning units were built up to insure protection of the blood, which becomes unfit for use under temperature conditions that are too high or too low, one unit for each of the advanced type of reach-in refrigerators used at the bank.

EQUIPMENT USED

The equipment consisted of the following items: Bristol Thermometer No. 3600, a special Penn thermostat consisting of a Type 264T, and a 265T made up into one assembly; 2 Edward's bells, 2 red lights and light receptacles. All of this equipment was mounted on a plywood base painted white.

The Penn thermostat consisted of two low differential thermostats, one which opened upon temperature rise and the other closing upon temperature rise. The thermostat had two bulbs, which together with the bulb of the recording thermometer, were installed inside a piece of 1 inch copper tubing, securely plugged at both ends, and approximately half filled with water.

ALLOWS FOR NORMAL USE

Purpose of this was to provide a small amount of thermal capacity so that the warning devices would not operate when the door was opened for a short period, but only if the door was opened for an excessively long period. Then the warning devices function and indicate to the operator that the door should be closed in order to prevent temperature rise in the blood or serum.

The warning devices were provided with extension cords which were plugged into a separate power outlet than that which was used for the refrigerators. This circuit was one which was carried clear back through from the power supply and without any possibility of fuses blowing out.

When the cabinet interior temperature goes below 35° F., the bell rings and the light turns on and stays on until the cabinet has warmed up to approximately 36°. If the door is left open for several minutes, the other bell rings and the other light turns on with a cabinet temperature of about 42° and stays on until the cabinet cools to approximately 39°.

The device, in addition to giving a low temperature warning and a high temperature warning, records the box interior temperature on a recording thermometer chart, thus providing a permanent record of the temperature conditions in the box day and night. By means of this recording device and the warning signals, it was shown that it was best to put only 10 bottles of warm blood in one of the boxes, then shift to the other box until 10 bottles had been obtained. By so doing such a constant temperature was maintained that the contamination rate of the blood fell from the levels as high as 0.7% to absolute zero.

Packing Plant May Be Likely Prospect For 'Priority' Business

CHICAGO—Packing plants are said to be able to obtain high priorities for expansion of their facilities, because of increasing requirements of our Allies.

This is said to apply to the smaller packing plants as well as to the larger houses.

Emphasis is said to be placed on such processes as will preserve meat for long distance transportation or long storage. Refrigeration and smoking are thus in favored categories.

Arthur Oppenheimer Quits OPA Job For Army

NEW YORK CITY—Arthur Oppenheimer, Jr., chief of five units in the consumer's durable goods section of the Office of Price Administration, has resigned to enlist as a private in the United States Army.

Mr. Oppenheimer has had charge of the lamps, china, silver, clocks, watches, and jewelry units in the consumer's durable goods section of OPA.

He came to OPA in 1941 from Bloomingdale's in New York, where he was an executive in the home furnishings division.

He has enlisted in the Army Quartermaster Corps and will be stationed for the present at Fort Totten, Long Island, New York.

EXPECT MORE SERVICE CALLS!

Be prepared for emergencies,

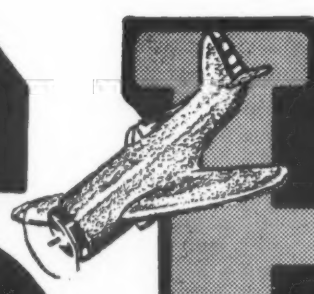
with a **PULMOSAN 1600 FUMEGARD**

With new installations curtailed for the duration, there will be more service calls to keep present systems in repair. Be sure you have a good, reliable No. 1600 Fumegard Face Mask to work safely on leaky systems, breakdowns and emergency work. Its compact design, husky rubber face piece, large, shatter-proof, non-fogging lenses, airtight fit, exhalation valve, scientific absorbents—all assure highest working safety, comfort and serviceability. Take advantage of the prevailing low price and prompt delivery of the No. 1600 Fumegard. Order now.

Pulmosan Safety Equip. Corp.,
Dept. AC, 176 Johnson St., Brooklyn, N. Y.

WRITE TODAY
for literature giving full details and price of the Pulmosan No. 1600 FUMEGARD

BUSH



COMMERCIAL COOL ITS

Bush Finned Tube Products are serving America in the Army, Navy, Air Corps and Merchant Marine . . . air conditioning submarines and bombers, cooling battleships and tanks, refrigerating cargo ships and cantonments. Although war production comes first, Bush still produces for essential civilian needs. Expert engineering, farsighted control of materials, long manufacturing experience, and highly specialized equipment . . . all contribute to make Bush Finned Tube Products still, as always, the finest obtainable.

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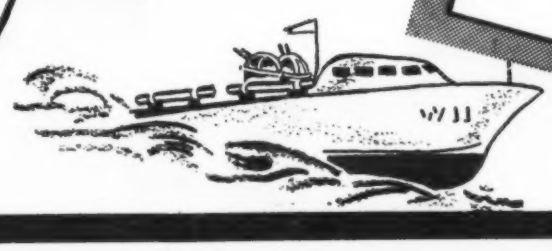
Bush Mfg. Co.



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F. M. COCKRELL, *Founder*

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Refrigeration Will Help Win the War

Credit Where Credit Is Due

EFRIGERATION has done a stand-out job of conversion in this war effort. But it hasn't received credit for it. Its situation is something like that of the homely girl who stays home and does all the work, only to have her pretty sister get all the credit from the boyfriends for being a good housekeeper.

Many other industries, particularly the automotive and aircraft, are now getting credit for jobs pioneered long ago by the refrigeration industry.

When the British Purchasing Commission and the pre-Vichy French government began combing American industry for concerns which could do high-precision manufacturing, they found some of their best bets among the hundreds of small, medium, and large manufacturers who comprise the refrigeration industry.

The reason is simple: making refrigeration products is close-tolerance work. In order to work at all, a refrigeration system must be delicately balanced and finely adjusted; it must be tight enough that the volatile gases it contains will not escape. All this calls for tolerances of thousandths, ten thousandths, and hundred thousandths of an inch.

A dozen years ago—when the industry was not nearly so far advanced as it is now—the writer recalls interviewing Louis Ruthenburg when he was president of the old Copeland company, out in Mt. Clemens. Mr. Ruthenburg (now president of Servel) proudly pointed out that his machine work was being held to closer tolerances than those adhered to by the Rolls-Royce motor manufacturers in England.

So we have, in this industry, a long background in precision work. We also have—because our industry prospered during the Depression, while others deteriorated—some of the best engineering brains in the world.

ENTERED ORDNANCE FIELD EARLY IN WAR EFFORT

Combination of these two factors brought the refrigeration industry into ordnance manufacturing early in the game. When America got into the war, this industry was ready. Some of its non-refrigeration products had already been tested in the heat of battle, on land, on sea, and in the air.

Processes and products developed by this industry were ready for use by other industries, and development of new ideas proceeded at an even faster pace.

Some of our larger concerns are, of course, making complete ordnance units of the dramatic sort that catches the eye. They are making, for instance, the largest cargo-carrying airplanes in the world. They are making machine guns and aircraft propellers, steam and Diesel engines, compressors and condensers, anti-aircraft guns and mounts. They are making wing sections and fuselages, gun turrets and gun mounts, superchargers and motors, bombs and shells, big guns and little guns.

But these are not the items of which we speak, even though they are the things most commonly thought of as armament. Where this industry has been useful was in creating *delicate control instruments* and *bottleneck parts*—items which may be relatively insignificant in size, items which the general public does not see or hear about, but items which enable the tanks and guns and planes and ships to perform.

Figuratively speaking, while other industries may supply the bodies of these lethal weapons, *we supply the brains.* This industry has made the difficult things.

In addition to these key parts, the industry also produces standard parts for marine engines, automatic machine guns, airplane engines, radio direction finders, hydraulic controls, submarine equipment, special trucks, Signal Corps devices, automatic fuses, aircraft intercoolers, and all kinds of special equipment for the Navy.

Several members of the industry have already received the Navy "E" award; others are slated to receive it in the near future.

COMPANIES DOING BETWEEN 45 AND 99% WAR WORK

Percentages of production of special ordnance products as compared with refrigeration products vary from 45% to 99% with individual companies, according to a recent survey by AIR CONDITIONING & REFRIGERATION NEWS, with the majority of firms reporting more than 90% of their productive capacity devoted to ordnance work.

In most cases, this means that they have enormously expanded their capacity, because Army and Navy demands—plus those from war factories—for refrigeration equipment alone are equalling the best previous recorded sales of the commercial refrigeration industry.

This industry is now working on a 100% priority basis. It is working at unbelievable speed to help beat the Axis. What's more, it has been producing for Victory since long before Pearl Harbor. Few industries in the United Nations can match its patriotic record.

Three weeks ago a number of firms in the industry received the following telegram:

"Ten North American B Twenty-Fives flew two thousand miles across the Pacific from Australia to the Philippines and blasted Japanese invaders night of April thirteenth. Docks were wrecked, ships were sunk, airfields and grounded craft destroyed. Flight leader General Royce and Lieutenant Colonel Davies were cited "for heroism and extraordinary achievement." Your workmanship helped get them there and bring them back. We recognize that fact and know you join with us in pride in their accomplishment.

LOVETT,
Assistant Secretary of War for Air."

Need more be said?

They'll Do It Every Time . . . . . By Jimmy Hatlo

WE WANT TO GIVE THE BOSS SOME-THING ON HIS BIRTH-DAY TO SHOW OUR RESPECT AND AFFECTION. CAN I PUT YOU DOWN FOR 50 CENTS ?
YOU CAN PUT ME DOWN FOR A BUCK IF YOU'LL GIVE HIM A MICKEY FINN!
IF YOU COULD MAKE IT A WREATH WITH R.I.P. ON IT, I'D CHIP IN A WEEK'S SALARY, BUT GLADLY.
SOMETHING TO SHOW OUR RESPECT AND AFFECTION? HOW ABOUT AN EYE-DROPPER? THAT'D JUST ABOUT MEASURE IT.
I SEE VIRGINIA'S POLISHING UP THE OLD APPLE AGAIN.
HAPPY BIRTH-DAY TO YOU - IF THE GIFTS THAT GAL COLLECTS FOR COULD ONLY TALK. WOW!
BUT-THEY'LL PRESENT IT WITH LOVE AND KISSES AND TEARS IN THEIR EYES —
THANX TO MARIETTA RILEY, LEXINGTON, KENTUCKY.
JIMMY HATLO
3-23
Copr. 1942, King Features Syndicate, Inc., World ri

LETTERS

A REPORT FROM AUSTRALIA

Refrigerators Pty. Ltd.
82 Mary St.
Unley, South Australia

Editor:

I am very glad to know that you and your acquaintances among business men are anxious to throw the great strength of your country into the defense of Australia. I believe most Australians think that it is important from your point of view, but a matter of life or death from ours.

Many strange things have come out of our experiences of the near approach of war. It is said that a brave man is one who, though afraid, will not give in. I think nearly everybody in Australia is surprised at how little opportunity there has been of showing this kind of bravery, because the spirit of fear just is not present here.

I don't know what the reason for this is, but I think the presence of your men here is certainly one factor, and an important one.

While there have been the normal number of arguments amongst high spirited young men of the two Armies, just to show that they are real men, it is one of the most pleasing features of the whole situation, with their different background, that your soldiers should have created a favourable impression far beyond what you would ordinarily think possible. I don't think the value of this can possibly be rated too highly.

The war situation here has made a complete change in our way of life, particularly so in this State.

There is no such thing as an unemployed tradesman, and there are hundreds of men of 60 years and over who have come back into industry.

You might be interested in the attached circular from the South Australian Employers' Federation, showing the latest list of goods, the manufacture of which is now prohibited in South Australia, in order to make more man power available. These particular articles are prohibited only in Victoria and South Australia, but many other articles are prohibited right through Australia. Victoria and South Australia are specially dealt with, because the man power situation is more difficult in these two States.

Refrigerators have come under the general ban, and it seems practically certain that no refrigerators will be available for any other purpose than hospitals and defense needs. It is doubtful if this will exceed 10% of last year's production, so that most of it can be supplied from the existing stocks of manufacturers, and the refrigeration trade swings over nearly 100% to war.

E. A. TRAVERS, Managing Director.

National Security (Prices) Regulations. Your attention is particularly drawn to the following list of goods, the manufacture of which is now prohibited in South Australia.

All the goods appearing on this list have been brought under the category of "declared goods" by the Commonwealth Prices Commissioner and the maximum price at which any of these goods may be sold by any person is the prevailing price, i.e. the price at which such goods were sold by any such person on 10th February, 1942, at the same place and subject to the same terms and conditions, if no sales were made on that date, on the last preceding date on which such sale took place.

Accordingly records showing costs and selling prices as at 10th February last should be retained for future reference.

Advertising show cards and show card board; Aerated water machines and gauges; Amusement park equipment; Architectural metal work (decorative); Art metal ceilings; Art metal coal boxes and kerbs; Automatic slot vending machines; Bath heaters;

Betting bags; Billiard tables; Cake ornaments; Carpet sweepers; Cement ornaments; Children's scooters, tricycles, motor-cars, trucks and similar vehicles; Club badges; Confetti; Confectionery machinery; Cordial machinery; Deck chairs; Display cards and cartons; Display stands and models;

Dog racing equipment, also accessories such as rugs, leads, muzzles; Domestic washing machines; Domestic vacuum cleaners; Electric dishwashing machines; Enameled badges and signs; Fancy earthenware; Fancy leather goods; Fancy leather goods machinery; Fur coats and garments;

Furniture items as follows: viz—Bathroom cabinets, China cabinets, Coffee tables, Cocktail cabinets, Floor and table standard lamps, Fireside sets, Glass-fronted bookcases and cupboards, Hallstands, Lounge suites, Settees, Easy chairs, Occasional tables, Pot-stands and plant pedestals, Traymobiles, Writing bureaus;

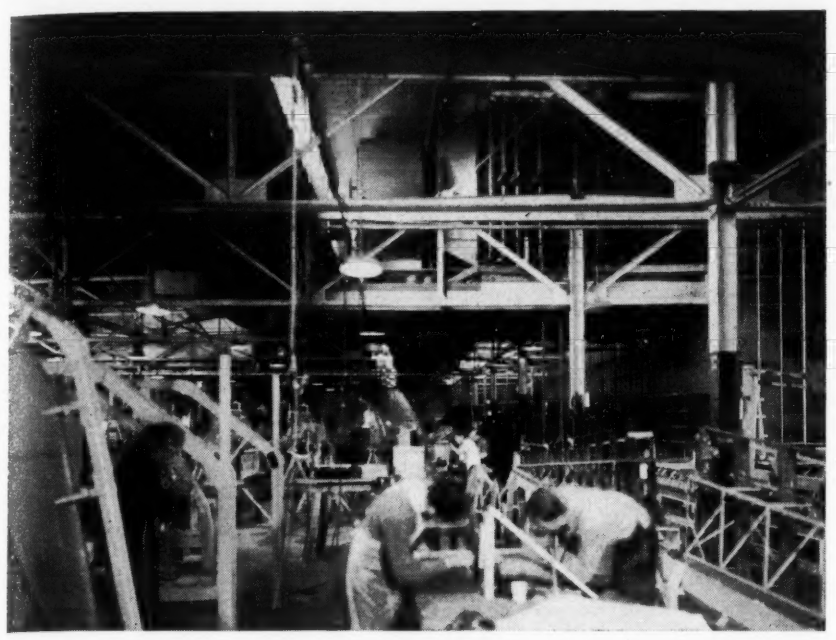
Garden arches, ornaments, rollers and seats; Glacarium equipment; Greeting cards; Horse trotting equipment. Household ornaments; House number and name plates; Jewel cases; Jewellers' tools and machines; Jewellery; Jewellery (imitation); Lawn mowers; Manicure sets; Men's evening wear, including dress shirts, dress suits, dinner jackets; Men's garters and sock suspenders;

Motor caravans, trailers and horse floats; Musical instruments; Ornamental electric fittings and art glass electric lighting ware; Plated table ware other than knives, forks and spoons; Paper novelties; Picture frames, exceeding 12 in. by 10 inc.;

Racecourse and horse racing equipment; Shooting gallery equipment; Shop window fittings; Show cases and show stands; Skates, ice and roller; Stained glass; Theatre programmes of more than a single sheet; Totalizator machinery; Toys; Tubular steel furniture; Walking sticks; Women's fitted dressing cases, and fittings for same.

G. HERBERT BOYKETT, Secretary

Helping To Give U.S. An 'Edge' In War Materials



Airplane assembly plants are one of the many places in which year-around air conditioning equipment is being employed to produce better War materials in less time. In this unnamed plant, the Carrier air conditioning system, as shown in the picture, is neatly tucked out of the way just under the ceiling.

Refrigeration Solves Problem In Operating Annealing Furnaces

EVANSVILLE, Ind.—The use of refrigeration equipment for annealing furnaces is an application for which the Electric Refrigeration and Air Conditioning division of Servel, Inc. has engineered several systems, and the war is stimulating further interest in this phase of "refrigeration for industrial problems" work.

Servel engineers explain the applications as follows:

Hundreds of plants in this country now employ what are known as "bright" annealing furnaces, which means a furnace designed to take steel, copper, brass, or various alloys which have become hardened or contain internal stresses from previous operations, and to sustain or normalize these metals at temperatures between 1200 and 1600° F.

At these temperatures the metals oxidize or scale badly if in contact with ordinary atmospheric air or atmosphere containing any considerable amount of moisture. In consequence it is common practice to create an artificial atmosphere over the metal by burning to partial combustion ordinary illuminating gas mixed with an insufficiency of air. The resultant gas from this combustion contains large quantities of carbon monoxide, carbon dioxide, nitrogen, unburned illuminating gas, and water vapor formed by the combustion of hydrogen.

If this water vapor is left in the air, the temperature of the furnace breaks it down into free hydrogen and oxygen, and the oxygen attacks the metals.

It is therefore necessary to dehydrate this blanket gas between the combustion chamber and the annealing chamber. This is done by first passing the hot products of combustion through coils immersed in a tank through which tap water flows, resembling in effect a simple refrigerant condenser.

In most plants the gas can be cooled to around 90° and saturation in this water tank. It then must be passed over a refrigerant coil held between 32° and 38°, to reduce the temperature of the gas to or below 40° F.

The gas then leaves this chamber at a dewpoint of approximately 40°, which means that it contains only about 3 grains of moisture per cubic foot, which has been found satisfactory in practically all bright annealing operations.

Each application of this nature is highly specialized, it is pointed out, and the survey should include the size of the furnace, the number of cubic feet of blanket gas to be cooled per hour, and the temperature of available tap water.

Refrigeration Service Engineers

YOURS *is a most important job in* Wartime Refrigeration *today!*

There's a War to be won — a War that demands every last ounce of energy, skill, and thought we can muster, whether we are on the battlefield or on the "Home Front."

Uncle Sam has asked the Refrigeration Industry to help WIN that war. We don't have to be ASKED! We just want to know HOW!

Job No. ONE

Help protect the food of the Nation — for Armed Forces and Civilian Workers — by keeping Refrigeration Equipment running at peak efficiency.

Job No. TWO

Keep that Equipment running WITH A MINIMUM OF REPLACEMENT PARTS AND MATERIALS.

This means that YOUR job as REFRIGERATION SERVICE ENGINEER is the most important job in the Industry! The Industry depends upon YOU, your skill, knowledge, ability to keep present Equipment running "for the duration." And it depends upon YOU and your judgment to buy Replacement Parts and Supplies ONLY AS ABSOLUTELY NEEDED.

Present stocks of these essentials must be STRETCHED as far as possible, in order that metals, materials, and MAN-POWER needed to make them may be used for MORE WEAPONS OF WAR.

Freedom of the World's suffering humanity depends upon this 100% cooperation. We promised Uncle Sam that the Refrigeration Industry would not let him down! Can we keep that promise?

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY — SECOND STREET
MILWAUKEE WISCONSIN

AP DEPENDABLE Refrigerant Valves

Controls Maker Cites 8 Principal Uses of Cooling In War Production

MINNEAPOLIS, Minn.—Manufacturers of refrigeration control devices, because they are called upon for engineering assistance in most new applications, have had an opportunity to follow the expansion and changes in the use of refrigeration as "the new machine tool" in War Production, says A. B. Newton, manager, Refrigeration Controls Division, Minneapolis-Honeywell Regulator Co.

In the storage of aluminum rivets, for example, Mr. Newton says the temperatures demanded have dropped from —45° to —130° F.

Mr. Newton believes that some of the most important applications of refrigeration and air conditioning equipment in War Production might be cataloged as follows:

(1) Low-temperature storage of aluminum alloys and aluminum rivets.

A number of the newer aluminum alloys undergo a hardening and aging process if stored above certain critical temperatures. Awhile ago, the alloys in use could be stored satisfactorily at —45°. Now, however, the newer ones have to be stored at approximately —107°. Hence, we have seen small portable storages at these extremely low temperatures so that the rivet storages can follow along the assembly line and rivets will not be in high temperatures for too long a period. We ourselves have had to develop controls going as low as —130° control point to take care of these applications.

(2) Cooling of spot-welding electrodes.

The number of spot-welds that can be made may be increased 15 or 20 times by holding the electrodes between 0° and 40°, depending on the material being welded. This increased production is important and both direct-expansion and brine systems have been put into use.

(3) Coolant cooling.

Machine tool coolants can be refrigerated and materially increase machine production. Also, the accuracy of machining can be greatly increased by proper coolant temperature. New equipment is often provided with refrigeration, but there is a vast market on old machine tools on which the coolants have not been previously refrigerated. No specialized equipment is required.

(4) Air conditioning of tool and die rooms.

Air conditioning of tool and die rooms has contributed a great deal to die accuracy, thus producing better parts and increasing production rates through elimination of rejections.

(5) Rubber storages.

Many plants use rubber in connection with their dies for various purposes. To increase the life of these parts, they are stored at relatively low temperatures. Again, no specialized equipment is required.

(6) Optical equipment.

The number of plants making optical equipment for the Army and Navy is rather astonishing and practically all plants so employed can increase production and stop rejections by proper air conditioning and humidity control.

(7) Heat treatment.

In plants which require quenching in connection with their heat treatment, we have found limited applications for refrigeration systems to maintain low temperature quenching baths. These increase the speed of production with present equipment and oftentimes improve the quality of the products.

(8) Control of refrigerants at extremely low temperatures.

Some of the recent chemical jobs have called for refrigeration at temperatures between —110° and —130°. These are temperatures at which the usual thermostatic expansion valves cannot operate effectively due to the small pressure difference available to operate them. Here again, we have had to develop special equipment consisting of differential temperature controls for low temperature work which operate motorized expansion valves. At the same time, we use a pressure control to limit the maximum suction pressure.

G-E Supply at Little Rock Handles 'Deepfreeze' Line

LITTLE ROCK, Ark. — General Electric Supply Co., Hotpoint distributor for this area, has taken on a complete line of Deepfreeze home lockers, according to C. J. Prashaw, district manager. Since this section of Arkansas supports many commercial locker plants, probably more than anywhere in the state, local people are well sold on lockers.

DU PONT
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For information about nearest source of supply, write to:
THE R. & H. CHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
or National Ammonia Division
Frankford P. O. Philadelphia, Pa.

TO ASSURE QUICKER DELIVERIES RETURN EMPTY CYLINDERS PROMPTLY!

There is a shortage of cylinders for refrigerants. If you will return your "Artic" Methyl Chloride containers as soon as empty, your deposits will be repaid immediately—and you will prevent delays in shipments of "Artic" to your shop! Round up any empties you have now and ship them back!

Corp. Hanning Gives a First Hand Report Of His Introduction To War Gases

Ft. Sill, Okla.

Dear Mr. Taubeneck:

Out of my four months in the army, one of the most vivid and interesting memories I have was the day our battery underwent a demonstration gas attack. The day I discovered the military, as well as the refrigeration industry, has had its problems in the control of gas. But in this case, gas is the enemy, rather than the friend of man.

A week of lectures and instruction on the potentialities and limitations of gas and the gas mask led up to this taste of the real stuff.

Final instructions on how properly to put on the mask and how to test for clear air after the "all clear" sounded were given us at the field where the demonstration was to be held.

Then while our column was marching across the field, a sergeant shouted "Gas!" and exploded a smoke capsule at our feet. At that signal, we snapped on our masks as quickly as possible. Non-coms moved through the ranks helping the more clumsy ones to adjust their masks tightly around their faces. We worked fast. We didn't know that it was just a smoke capsule!

When the smoke cleared away, "All clear" was sounded. We pulled the mask slightly away from our face and sniffed gently for gas. Detecting none, we removed our masks.

Masks back in their containers, we assembled before a raised platform in the middle of the field. A lieutenant on the platform explained to us that we would now get a whiff of common gases so that we would be able to recognize them in the future. We would run through a gas infected area. Then we would identify the odor in our own terms.

"The first gas you will go through will be chlorine (Cl)," the lieutenant began. "It has a disagreeable pungent odor. A greenish yellow gas, it drifts with the wind, clinging for some time in trenches, shell holes, and other depressions in the earth.

He went on in detail into all the aspects of chlorine. Then—

"A capsule of the gas will be exploded. At my command, run through the gassed area, sniffing gently as you pass. Before you start, take half a breath. Finish the breath as you pass through the area. Don't linger. Pass right through.

"Aba-out face!"

Two hundred excited and nervous men executed his command. A dull pop told us the capsule had been exploded.

"Aba-out face!"

I turned around. A greenish yellow cloud floated over the ground about 25 yards away.

"Double time, march!"

Half filling my lungs with clean air, I followed the man ahead of me at a trot. We moved into the drifting cloud, trampling it into the earth.

I sniffed suspiciously. I sniffed again. The gas was now behind us. I hadn't smelled anything. I was both relieved and bothered. How could I identify a gas I couldn't smell?

We reassembled before the lieutenant.

"The next gas is phosgene (CG)," he said. "It is colorless and smells like new mown hay or cut corn.—." Again we heard a long description and again we trotted through the gassed portion of the field that now was pungent with the odor of cut corn.

The same process was repeated as we were given first hand introductions to Chlorpicrin (PS), Lewisite (Ml), and mustard gas (HS). Refrigeration men may recognize these from their chemical formulae. We learned that a gas mask, and with the last two, protective clothing, were sufficient to protect us from all these gases.

When the last gas had been sampled, we laughed among ourselves to discover that we had been gassed five times that morning and were still alive. But the biggest test was still ahead of us.

Four squat canvas covered shacks stood at one edge of the field. Tear gas chambers.

This time we wore our masks and made sure they were air tight. We went into the chambers a half dozen at a time. Not in the first bunch, I watched six ghoulish looking masked figures step into one shack. One or two minutes passed.

Up jerked the canvas flap that covered the entrance. Out darted one fellow, mask in hand, eyes streaming, face red.

A second later, another followed. The next had trouble getting the flap up. He literally fell out. Others came tumbling after.

As the men flew out, a sergeant shouted, "Don't rub your eyes! Face the wind!"

A second group entered the chamber and the process was repeated. The sergeant conducting the demonstration beckoned the third group to come in. That meant me.

With gas mask firmly fixed, I lifted the flap and plunged in. By the dim light I saw another canvas flap about 4 feet in front of me. I lifted that and stepped into the gas chamber itself. T'was a small dark room lit only by a tiny candle, buurning in the center of the earthen floor.

We men ranged ourselves along the wall. His words muffled by his mask, the sergeant explained, "This room is filled with tear gas (CNS). You don't see nothin' do ya? You don't feel nothin'. But it's here just the same. Any man that doesn't believe me, just take off your mask and find out!"

There were no takers.

He explained all about tear gas. When he finished, he said, "Alright, now. Each man file around this a way. When he gets to me, he takes off his mask. Then get outside, pronto! O.K. First man."

The first in line tore off his mask and darted for the flap. He crashed into the ante chamber and then outside.

The second man followed.

I ripped off my mask. The air was heavy with the odor of fly paper. I didn't hesitate. I pushed my way through the canvas flap, grabbed the outer flap, and darted into the fresh air.

"Don't rub your eyes. Face the wind!"

I faced the wind and let it whisk the tears from my eyes. I smiled then and laughed. It hadn't been so bad after all. Yet I had had enough gas for one day.

Days as interesting as that, Mr. Taubeneck, have been few and far between.

CORP. GEORGE M. MANNING

Eight Stars In Our Flag

Air Conditioning & Refrigeration News and the Business News Publishing Co. have a very large and very real personal stake in this man's war, inasmuch as practically 50% of our male staff is now in the armed forces.

Eight of our boys are now in the Army, the Navy, and the Marine Corps, leaving but nine of us (including men in the shop) still here to keep the News running.

For some time we have been carrying in the masthead the names of our boys in the service, as follows:

On leave of absence to serve our country: U. S. Army, Richard A. Neumann, Jack Sweet, George L. Collins, and George M. Hanning. U. S. Navy, Robert P. Nixon, Ed Henderson. U. S. Marine Corps, Paul R. Park. U. S. Army Air Corps, Jim McCallum.

In this group are representatives of every branch of our business—editorial, advertising, circulation, accounting, and production. We are carrying on under difficulties without them, and working hard to train women to do as much of the work as possible.

From a purely selfish standpoint, we have two strong objectives here at the News during this war: (1) To provide subscribers with information which will help them turn out more implements of war for Our Boys to use in their grim task; (2) to keep the company in a healthy condition so that Our Boys will again find real opportunities here when they are discharged from the service.

We were proud of these promising young men before they left. We have taken increasing pride in their accomplishments in the service. And after the war, the whole industry will be proud of the high type of newspaper they will help us turn out when they are back in the fold.

A Navy Man's Night Out

Ed Henderson, who was our Circulation Manager until he enlisted in the Navy last December, is pictured here being entertained by Mrs. Henderson and Mr. and Mrs. "Sandy" Pratt in San Francisco. "Sandy" is the well known San Francisco refrigeration parts jobber, while Ed is in training at Treasure Island. Mrs. Henderson is now employed in Mr. Pratt's Oakland branch office.

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TRANSFER EQUIPMENT
FOR UNCLE SAM

MARLO EQUIPMENT CONTROLS HUMIDITY AND TEMPERATURE FOR

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ST. LOUIS, MO.

Rx Stop Curing Moisture Troubles ...PREVENT THEM!

With Davison's Silica Gel as your working partner, you've an opportunity to get the jump on trouble—moisture trouble! Not only can you overcome it, but you can tell your customer that it won't happen again! That is the kind of service that will carry you over these days when existing refrigerators MUST be kept running.

Add up these Silica Gel advantages—CAPACITY, 1½ to 2 times as much as other drying agents; SPEED, instantaneous; ACID REMOVAL, prevents corrosion and sludge formation; FREEDOM FROM DUSTING, assures free flow of refrigerant. What do these features total? Complete freedom from breakdowns caused by moisture, according to manufacturers and experienced service engineers!

Want to give your customers this kind of service? See your jobber. He has Silica Gel charged dehydrators and Silica Gel in bulk for refill.

THE DAVISON CHEMICAL CORPORATION
Silica Gel Department . . . BALTIMORE, MD.

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OTHERS PENDING

REFRIGERATION ENGINEERING, INC.
Los Angeles, California, U.S.A.

G-E Dealers Must 'Qualify' To Be 'Local Service Centers'

Headquarters To Dole Out Parts Judiciously

BRIDGEPORT, Conn.—Details of the General Electric program for retail service on appliances (announced in the May 4 Bulletin Edition of AIR CONDITIONING & REFRIGERATION NEWS) have been released by officials of the G-E appliance and merchandise department here.

As announced following a meeting in Bridgeport, the plans will involve the establishment of G-E owned regional appliance service centers in various sections of the country, each regional center serving as a pool of replacement parts and repair facilities for several distributorships.

It was clearly explained at the Bridgeport conference that the new plan need not interfere in any way with already well established and smoothly functioning distributor service facilities. Functions of the regional appliance service center will vary in accordance with the particular problems and requirements of the areas which they serve.

Some distributors, particularly in metropolitan areas, may call on the appliance service center for parts only. Other distributors will encourage their appliance service center dealerships (qualified service dealers) to make use of the regional appliance service center not only for parts, but also for service facilities over and above the standard services performed by qualified dealerships.

Each distributor within service distance of the regional appliance service center will have the advantage of a more complete stock of replacement parts than he might have been able to maintain, and he will not be required to have a large investment tied up in parts, G-E officials stated.

PARTS DISTRIBUTION

Moreover, there will be fewer replacement parts lying unused on the shelves of one regional appliance service center, than would be required to fill the shelves of each of several distributorships. Therefore, the plan requires a smaller backlog of parts in each region, thus conserving parts for the customers who need them, officials feel.

G-E dealers who are in a position to offer adequate repair facilities in accordance with minimum standards outlined in the plan, will be authorized as local G-E appliance service centers in their communities. A complete course of instruction will be given to the personnel of dealerships appointed. Training films and other instruction courses have already been prepared, and the first training courses will start early in May. All the materials required for the training courses are available in a complete package.

A dealership authorized as a local G-E appliance service center will be identified by a sign.

Some of the requirements which must be met by a dealer before he can qualify as a local G-E appliance service center are the following: (1) maintain adequate trained personnel; (2) maintain an adequate stock of supply parts on all products which he services; (3) maintain a repair shop equipped to make minimum standard repairs; (4) maintain installation and service records.

(5) Maintain and keep up-to-date a complete file of G-E service manuals, price lists and catalogs; (6) courteously handle calls for service he is not equipped to render (this means either sub-letting the service job to the nearest qualified shop, or furnishing complete information to the customer on the nearest qualified repair station); (7) adequately identify his store as a headquarters for G-E service and to thoroughly establish this identification through advertising; (8) equip all service personnel with adequate tools.

HOW PLAN IS TO WORK

This is the G-E explanation of "how the plan works":

"For example, let's suppose that Dealer Jones in Fitchburg, Mass. is identified as a local G-E appliance service center. He handles a fairly complete line of G-E appliances and can make all of the repairs required in the G-E minimum standards for local appliance centers. Let's suppose that Mrs. Smith comes in to Dealer Jones with a number of G-E appliances which were broken when a moving van crashed over an embankment. Mrs. Smith's list of broken appliances includes a refrigerator, range, cleaner, fan, clock, and radio.

"Dealer Jones has on hand the most commonly called for repair parts on most of the appliances. But in the accident, several of Mrs. Smith's appliances suffered unusual damage. Dealer Jones, through his distributor, orders from the regional G-E appliance service center in Boston, a list of the parts needed for repairs which he can make. The parts are shipped the same day if the order reaches the Boston center before 4 p.m., and the parts arrive at Dealer Jones' store the following morning. (Each regional G-E appliance service center aims to give overnight service on parts to any point in the region which it serves.)

"A few repairs on the range are of major character, and they require heavy, expensive equipment. Dealer Jones ships those jobs to the regional appliance center in Boston.

"Dealer Jones doesn't sell clocks, but he must have on hand full information on the repair of Mrs. Smith's G-E clock. He may either sublet the clock, repair to the nearest authorized G-E clock repair shop, or he may give Mrs. Smith full information on where to take it, whichever course is of greatest service to Mrs. Smith."

General Electric's primary purpose in the new service plan according to W. C. Noll, G-E appliance service manager, is to supply "restored service" to customers whose appliances fail during the war emergency. G-E is not interested in rebuilding for indiscriminate resale old refrigerator units that may be lying around in warehouses in quantity.

However, the company is asking the cooperation of dealers and distributors in turning over to the factory old non-working refrigerator units. The company regards these units, and all service parts and rebuilding facilities as precious things which must be reserved for actually restoring service to customers who suffer from an appliance breakdown.

When a sealed unit fails, the dealer sending it in for rebuilding, must furnish the name of the customer, and must certify that it is being rebuilt to restore service in the customer's home.

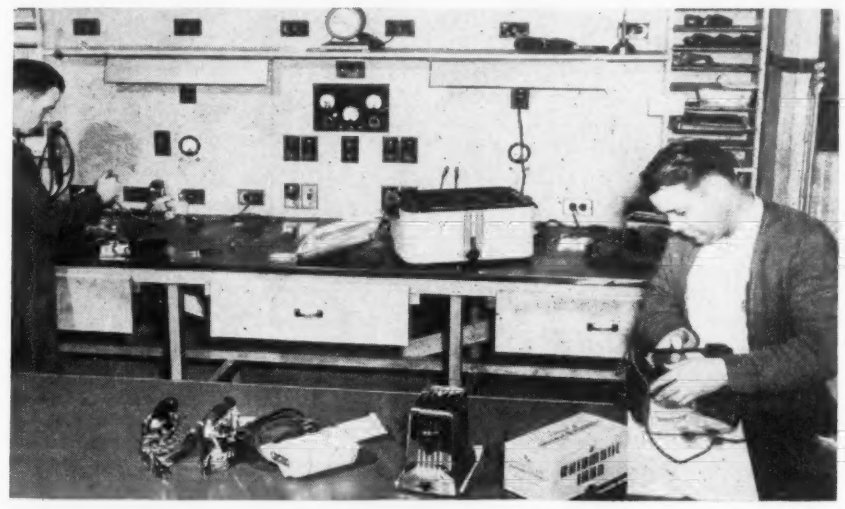
Rebuilding of sealed refrigerator units requires factory equipment, and this job is too big even for the regional appliance service centers. The five G-E owned factory rebuilding centers which have been regularly operating in Long Island City, Cleveland, Schenectady, Kansas City, and San Francisco, will continue to handle rebuilding jobs.

Following the principle of "restored service only" for the duration, G-E is asking its qualified local G-E appliance service centers not to sell parts unless the parts are necessary for the operation of the appliance. Every effort will be made to prevent a run on parts. No consumer will be encouraged to keep on hand spare parts. Only by using parts judiciously, G-E asserts, can essential restored service be maintained.

The regional appliance service center which will serve New England and upper New York is being established in Boston at 700 Commonwealth Ave.

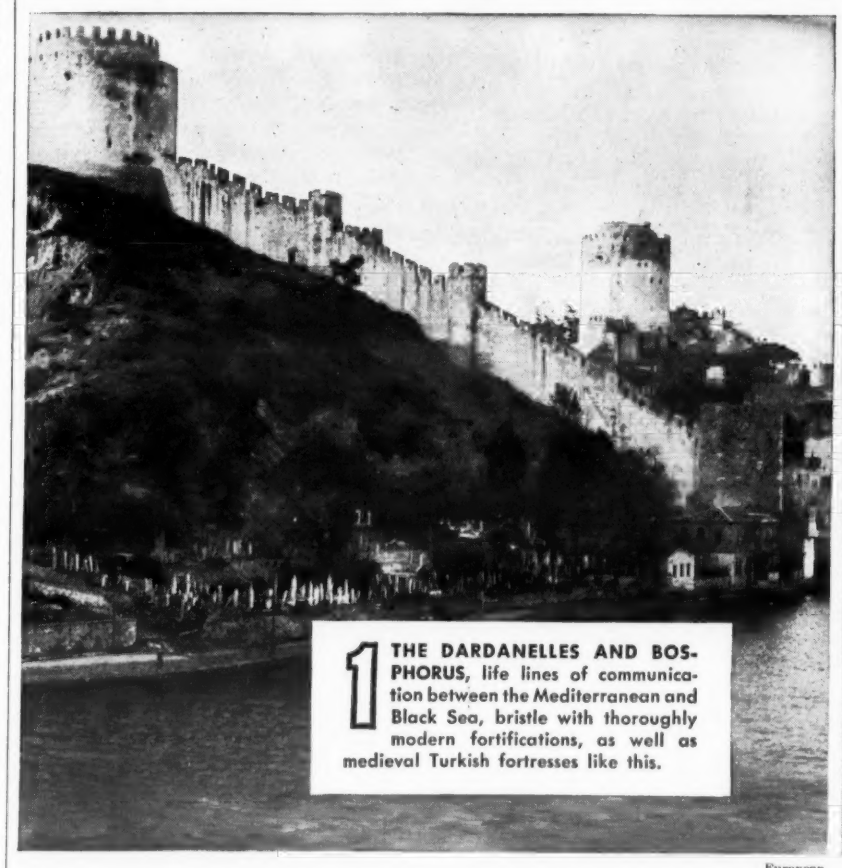
In Atlanta, the regional appliance service center was started from scratch. A location was selected (49-51 Auburn Ave.), a supply of parts is already on hand, and repair facilities are now being established.

A regional appliance service center in San Francisco, at 351 Bryant St., will serve the West Coast area.



Scenes at the G-E appliance service center in Boston, which serves as a pool of replacement parts and repair facilities for New England and upper New York. (Top) Workbench on small appliances. (Lower left) Finishing touches for an iron on one of the power driven tools. (Lower right) A Monitor Top unit is refinished.

FAMOUS LIFE LINES



1 THE DARDANELLES AND BOSPHORUS, life lines of communication between the Mediterranean and Black Sea, bristle with thoroughly modern fortifications, as well as medieval Turkish fortresses like this.

European

2 U. S. ARMY SEARCHLIGHTS, such as this, more and more frequently have their life lines—lubrication lines for trailer and for power generating units — made from Bundy Tubing.

Photo by U.S. Army Signal Corps

WHEREVER you find the armed forces of the United Nations, there you find Bundy Tubing giving the utmost in strength, in ductility and in resistance to vibration fatigue.

American tanks, with fuel and lubrication lines, conduits, and hydraulic turret and brake tubes by Bundy, are striking telling blows on half a dozen fronts. American planes, with various engine and propeller parts of Bundy Tubing, are proving their superiority in far-flung operations from the icy north to the steaming tropics.

More than forty types of American made military vehicles with an average of twenty or more Bundy Tubing parts are standing up under gruelling punishment all over the world. In fact, wherever fuel or lubricants or refrigerants must be carried — wherever vacuums are necessary or hydraulic pressures must be transmitted — Bundy Tubing is on the job.

For hundreds of mechanical and structural applications, too—for radios and antennae, for flag staffs and parachute rip cord grips, in expeditionary gas cans and in ground and parachute flares, in dozens of other spots where light weight and strength are essential—Bundy Tubing is a frequent choice.

To learn how Bundy Tubing may be adaptable to your war production needs, write Bundy Tubing Company, Detroit, Michigan.

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including $\frac{1}{16}$" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

BUNDY ELECTRICWELD steel tubing. Single-walled — butt welded — annealed. Also furnished tin-coated outside if desired. Available in sizes up to and including $\frac{5}{8}$" O. D.

BUNDY "TRIPLE-PURPOSE" MONEL tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel, Monel inside —steel outside, and Monel outside — steel inside. Sizes up to and including $\frac{5}{8}$" O. D.

GENERAL ELECTRIC

HOME COOLING AND VENTILATING FANS

IMMEDIATE DELIVERY! !

Available in following sizes—

30" Diameter 42" Diameter
36" Diameter 48" Diameter

110/120 Volt—60 Cycle

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Rebuilding Operations

Overhaul and Reconditioning of the General Electric 'Monitor Top' Unit

Step-By-Step Procedure For the Service Shop

By R. L. Walsh, Westchester Dealers Refrigerator Rebuilding Service, New Rochelle, N. Y.

Editor's Note: The following is an article on the fundamental procedure in overhauling and rebuilding General Electric 'Monitor Top' household refrigerating units.

The information was prepared by Roland L. Walsh, operator of the Super Refrigeration Sales & Service in New Rochelle, N. Y., and who also acts as the exclusive rebuilder of electric refrigerators in Westchester county.

When a serviceman comes across a General Electric "Monitor Top" unit that isn't operating properly or at all, he may be inclined to say "junk it," for the simple reason that all "Monitor Top" units are of an age at which they can respectfully retire.

As many experienced servicemen know, however, the "Monitor Top" is a well made unit and many years can be added to its life by some simple rebuilding operations.

Make the usual first check-up to see if the unit will operate at all, and if it does operate, whether there is refrigeration at the evaporator.

If it doesn't run at all and you test the switch and determine that it is all right, then the motor is either stuck or burned out.

When you come across a unit that runs but doesn't produce any refrigeration at the evaporator, listen at the evaporator. If you hear the familiar gurgling sound, it is likely that the system is short of refrigerant.

If you don't get "anything at all" at the evaporator it is probable that the float is stuck tight.

To disassemble the "Monitor Top" unit start by removing the screws from the inside of the porcelain section that holds the evaporator to the condensing unit above it.

The "CY" or some similar hermetic valve set should then be connected to the high side float. Connection should then be made to an empty refrigerant drum—and, with a strainer in the line, the system should be discharged of the refrigerant. Heat should be applied to the evaporator until all the gas is driven out.

Where the unit is a welded rather than a "bolted" model it will be necessary to have the unit opened by someone who has the proper equipment. When it has been cut open from the bottom the unit can be removed in one piece.

Try rotating the motor by hand (it should spin rather easily). With a set of test leads and a 40 watt lamp test the three leads coming out of the motor.

If the test shows the leads to be okay, connect up the leads to the switch, and the motor should then run. If the motor does not run, it will have to be rewound.

The stator is easily taken out by removing the four long screw bolts and lifting the stator out.

The discharge valve plate assembly should always be removed rather than re-ground. All oil and foreign matter should be washed from the compressor. Make certain that the small fan is not bent.

When the stator has been rewound and you are ready to assemble the unit, bolt it down tight, then rotate the rotor by hand a few times. Be certain that all the mounting springs are in their correct upright positions. Solder the three leads to the bottom plate. Be sure to put in only the exact amount of oil (which can be obtained from the Refrigeration and Air Conditioning Specifications Book).

After the unit has been welded and put back into place the next step should be to remove the float. If it is not operating it should be replaced, but if it seems to be in pretty fair working order, best thing to do is to leave it alone.

If it is necessary to cut in a new float, cut the liquid line as close to the float as possible, then cut the line coming from the condenser as close to the float as possible. Be sure you cut the copper tubing, and don't leave a lot of steel tubing on the top.

Emery both lines very clean and cut in the new float by making two swedge joints, and doing the best soldering job possible. The evaporator can then be bolted to the "Monitor Top" unit.

In charging the system with refrigerant be sure to have the exact amount of gas weighed off according to the name plate reading. Charge through the float. The instant that the float opens and the refrigerant starts down into the evaporator apply heat to the drum to drive it down.

When this has been completed put the machine into operation and find out how it is operating. When it has operated for about 5 minutes, connect a purge line to the "CY" set and purge two or three time to get all of the air out of the system.

AMINCO OIL SEPARATORS
1-3 h. p. to 120 Tons
American Injector Company
1481 14th Avenue, Detroit, Mich.

Army Speaker Stresses Need For Accurate Control of Inventory

NEW YORK CITY—The need for accurate inventory control with industry ready to supply all necessary information under the new Production Requirements Plan, which will definitely go into effect after July, has been stressed by Major H. R. Battley, district public relations officer of the Air Corps.

Speaking April 21 at a forum discussion of the form PD-3A sponsored by the Purchasing Agents Association of New York, he warned industry to prepare now for the new plan, which will consist of at least 90% of the present set-up.

He advised the purchasing agents to have their companies assign someone to collect and prepare all the necessary data for participation under the plan.

Several agents voiced complaints that they were unable to obtain materials from suppliers on an A-10 preference rating because the suppliers contended they could not replace the material unless they had a higher rating. Lieut. Col. N. D. Frank of the Eastern District Procurement Office of the Air Corps answered that it was mandatory for suppliers to observe all preference ratings, regardless of whether the materials required a higher rating to replace.

5,000 Witness Presentation of Navy 'E' And 'Minute Man' Flags To Tecumseh

Part of the crowd which attended the presentation ceremonies at Tecumseh Products Co. is shown above. The Navy "E" flag has just been raised and its presentation was followed by the raising of the "Minute Man" flag for war bond buying.

* * *

High Officials Pay Tribute To Manufacturer

TECUMSEH, Mich.—The Tecumseh Products Co., manufacturer of refrigeration compressors, is the first manufacturing company in the country to receive simultaneously the Navy "E" pennant, symbolic of outstanding performance in naval ordnance work, and the Minute Man Defense Flag of the U. S. Treasury department, symbolizing the fact that more than 90% of a company's employes are buying War Bonds on the voluntary payroll deduction plan.

The pennant and the flag were awarded at ceremonies April 28 at the Tecumseh plant, attended by some 1,200 employes and townspeople who swelled the crowd to 5,000 persons.

In addition to the Navy and Treasury department officials present, Gov. Murray D. Van Wagoner of the state of Michigan spoke to the assembled throng.

"You are the first small factory in the nation to obtain large scale production," said Capt. Glenn B. Davis, U.S.N., assistant chief of naval ordnance, in presenting the "E" pennant.

"You have adapted the tools at hand to the work to be done—important because new tools are hard to get. You have done a real job. Not only have you done a good job yourself, but you also have helped other companies in perfecting their work."

Ray W. Herrick, president of Tecumseh Products, accepted the pennant for the company and the employes. He told how the company early last year had sought to get an order from the Navy Ordnance department.

"They finally gave us a good sized order, then they doubled it' and when we asked for more, they doubled that. By June we will be going at a much higher rate.

"The Navy men expressed amazement at the size and quality of our production, and have asked us to tell some other producers just how we do it."

Mr. Herrick disclosed that Tecumseh Products will soon begin production on another type of ordnance work for the Navy, in addition to its present contract.

Before he finished, Mr. Herrick presented Capt. Davis with a check for $500 from the Tecumseh Products Workers Union, and another check for $1,000 from the company, to be turned over to the Navy Relief Fund.

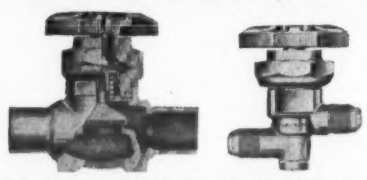
Frank N. Isbey, chairman of the Michigan War Savings Committee, then presented the "Minute Man" flag to the company, pointing to the remarkable record the employes are making in the purchase of War Bonds (98% of the men and women are buying War Bonds on the voluntary payroll reduction plan).

Superior PRODUCTS ★ ★ ★
★ ★ ★ FOR YOUR *Defense* JOBS

Increased refrigerated space for the accelerated production of perishable foods places a heavy responsibility upon the refrigeration industry. Shortage of metals condemns waste and inefficiency. Do your part to conserve materials. Design to produce more refrigeration per watt hour. Select equipment which requires a minimum of service. Specify SUPERIOR — the quality buy-word of the industry.

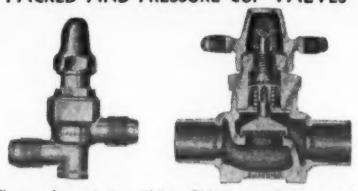
CUT

DIAPHRAGM PACKLESS VALVES



Entire internal assembly removable for soldering or inspection. Equipped with famous pressure cup below diaphragm. Two and three way. Flare sizes ¼" to ⅜"; Sweat sizes ¼" to ⅞".

PACKED AND PRESSURE CUP VALVES

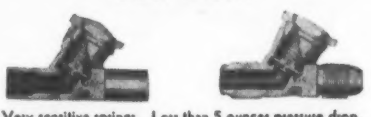


Flare and sweat sizes ¼" to ⅜" (two and three way) have hex seal cap. Sweat sizes ¼" to 2⅛" (globe) have wing nut seal cap. Internal assembly (all sizes) removable for sweating to valve body.

★ *Refrigeration is Vitally Essential to Our National Defense Efforts* ★

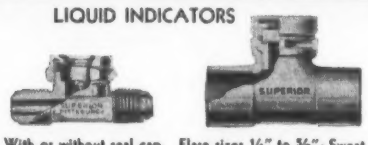
CUT OUT AND SAVE

CHECK VALVES



Very sensitive springs. Less than 5 ounces pressure drop. Positively will not chatter or hum. All internal parts easily removable for sweating or inspection. Sizes ¼" to ¾" Flare; ¼" to ⅜" Sweat.

LIQUID INDICATORS



With or without seal cap. Flare sizes ¼" to ⅜"; Sweat sizes ¼" to 1⅜". On ⅛" Sweat to 1⅜" entire upper assembly may be removed as a unit to facilitate soldering of refrigerant lines to connections.

★ *Refrigeration-Food Preservation and National Defense are Synonomous* ★

FOR FUTURE REFERENCE

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Silica-Gel or Activated Alumina. Refillable and non-refillable. ¼" to ⅜"; ¼ to 5 H.P.; 2 to 60 cubic inches.

MANIFOLDS

With packless or seal cap valves. Two to six valves; ¼" to 2⅛" valves, with or without end fittings. Sweat or flare.

FILTERS

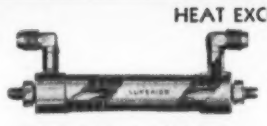
Highly efficient sack type filter. Sizes ¼" SAE to ⅜" SAE. One to five horsepower.

★ *Don't take chances with the Nation's Health--do the best job possible* ★

FITTINGS

Unions, adapters, elbows, tees, crosses, caps, etc. ⅛ through 1".

HEAT EXCHANGERS



Unique design gives highest capacity per unit size. Sweat or flare connections. 4200 to 9725 BTU per hour.

Combination Heat Exchanger and Accumulator. From one to ten tons. Especially recommended for low temperature installations.

FLARE NUTS

Brass and steel. Long and frost proof. Forged and bar stock.

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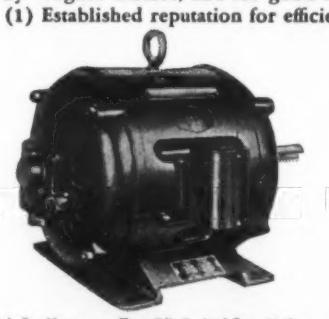
Thousands of WAGNER Motors
ARE NOW GIVING DEPENDABLE SERVICE ON REFRIGERATING AND AIR CONDITIONING EQUIPMENT IN DEFENSE INDUSTRIES, ARMY CANTONMENTS, NAVAL STATIONS, ON SHIPS, ETC.

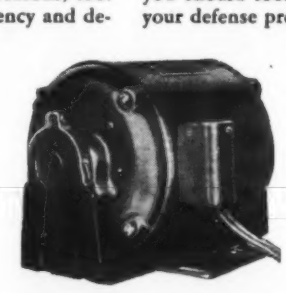
FOR QUICK DELIVERIES ON MOTORS FOR DEFENSE PRODUCTION SPECIFY WAGNER

Our Country has sounded the call for equipment and machinery for national defense. Equipment manufacturers everywhere are answering that call—and refrigerating equipment manufacturers are no exception. Already thousands of refrigerating units are doing their part in the defense program—a large percentage of these units are powered by Wagner motors, and for good reasons, too. (1) Established reputation for efficiency and dependability, (2) complete line—the right motor for every type of equipment and all service conditions, (3) quick shipments to handle rush defense orders, (4) large plant capacity to handle any order, large or small, (5) 50 years manufacturing experience, (6) convenient service facilities through 25 branches . . . six good reasons why you should look to Wagner for motors for all your defense production.

Type M, Shaded-Pole Fan Motors (1/125 to 1/30-hp)—ideally suited for fan and blower drives where the fans or blowers are mounted directly on the motor shaft.

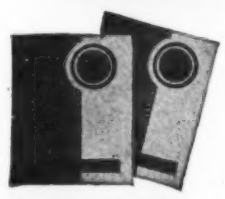


Type RP, Squirrel-Cage (1/6 to 400-hp)—because of simple construction are low-priced, easily installed, and exceptionally sturdy and dependable.



Type RA, Repulsion-Start-Induction (1/8 to 15-hp)—the ideal motor for heavy duty applications such as compressors, pumps, stokers, etc.

Type RK, Capacitor-Start Induction-Run (1/8 to 3/4-hp).



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M41-21

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6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

25 SALES AND SERVICE BRANCHES Conveniently Located Throughout the Country.

Trained Sales-Engineers are always ready to assist you in selecting motors to meet your particular requirements.

MOTORS • TRANSFORMERS • FANS • BRAKES

What's New

Descriptions of some of the brand new items for the refrigeration and air conditioning, and major appliance fields.

Fiberglas Board For Blackout Use Helps Cushion Blast Shock

DETROIT—A new, blast-cushioning, incombustible glass fiber material for blacking out war production plants was announced at a special showing here recently by Owens-Corning Fiberglas Corp.

The material is designed to reduce damage from concussion and to provide protection against the spread of fire caused by incendiary bombs or explosives.

Known as Fiberglas OC-9 Board, the new material is composed of fine, resilient glass fibers compressed and treated with a binder which gives it sufficient rigidity to serve as a self-supporting, fire-resistant material. The material can be faced with glass fiber cloth, plywood, or other surfacing materials.

Experience in England has shown that even fairly distant bombing may prove highly destructive to industrial operations by shattering windows, scattering death-dealing glass fragments, and disrupting delicate instruments.

Although the concussion-absorbing qualities of the compressed glass fibers cannot provide protection against nearby blasts, the resilient, light-obscuring and protective materials may prove of definite value by absorbing part of the concussion caused by explosions.

In addition to their incombustibility and shock-absorbing properties, all of the glass fiber products designed to contribute to the air-raid protection of industrial plants provide a high degree of heat-loss reduction and sound absorption.

Interior plant noises generated by machinery and processes can be greatly reduced in their perceptible intensity by the sound absorption properties of the glass fiber materials used as blackout screens, partitions, or as an all-over interior surface treatment. Experience has shown that noise reduction is a decided aid to increased production because of lessened worker fatigue.

Insulation Varnish Stands Up Under Heat

HAYSVILLE, Pa.—Development of a new insulating varnish, S-110, that will stand operating temperatures at 250° C. or higher for application to electrical apparatus that must operate at abnormally high temperatures was revealed this week by the Sterling Varnish Co. here.

When baked at 175 to 200° C. the varnish dries all the way through the deepest winding and does not resoften when exposed to high operating temperatures. The dried film is mechanically strong, adhesive, and flexible, retaining these characteristics under adverse heat conditions, the company claims.

Before pronounced complete, S-110 was subject to the following test. A machine wound with glass covered wire, insulated with glass and mica, and treated with two coats of S-110 was run to destruction. Upon investigation, the insulation varnish was found to be in excellent condition, while the stator showed no signs of breakdown although the rotor bars had loosened due to the brazing having melted away at 700 to 800° C., it was stated.

Pulmosan Markets Bomb Extinguisher

BROOKLYN — Pulmosan Safety Equipment Corp. here has announced that its newly developed Magout Powder will extinguish magnesium fires caused by magnesium shavings in machine shops or by magnesium incendiary bombs easily and quickly.

This non-absorbant, pulverized dry powder, which smothers the flames, is safe to handle and will not deteriorate, the company claims. Magout is available in either bulk quantities or in instant-action tubes for sprinkling on fire. The latter is a new type cardboard container, spiral shaped for convenience in handling, with metallic ends and lined with paraffin.

G-E Builds 2 Units For Heating War Homes

BLOOMFIELD, N. J.—Two new compact, low-cost furnaces specifically designed to meet the needs of war housing applications have been announced by the General Electric air conditioning and commercial refrigeration department.

Both are warm air furnaces of the oil vaporizing type and both are shipped factory wired and assembled ready for installation. These new units supplement the company's new line of "packaged" heating equipment previously announced.

An important factor considered in the design of the units was the conservation of metals and many savings were effected, with the result that one unit weighs 210 pounds and the other only 160 pounds. This low weight, together with the compactness of the units, not only reduces freight and handling charges, but also simplifies and speeds installation.

One furnace, suitable for either basement or utility room installation, is equipped with a centrifugal fan. It has a supply outlet at the top and a return duct outlet at the bottom. No filters are supplied, but they could be applied to this model if they were desired. The gross output of the unit is 60,000 B.t.u./hr. and its bonnet output is 53,000 B.t.u./hr. The bonnet airflow is 530 c.f.m. This is, of course, the lighter unit weighing only 160 pounds.

A mechanical draft fan is standard equipment on both models. The units also come complete with oil control valve, fan control, limit switch, draft regulator, and single range thermostat. The oil rates of the furnaces are 0.10 gallons per hour minimum and 0.61 gallons per hour maximum.

New Catalog Illustrates Fluorescent Lights

BRIDGEPORT, Conn. — A new folder which describes and illustrates G-E accessories for fluorescent lighting, has been announced by the construction materials division of General Electric Co.'s appliance and merchandise department.

The folder illustrates starters, lampholders, starter sockets, combination lampholders and starter sockets, and a manual control switch.

One of the starters shown in the folder is a "No Blink" type, developed and introduced by G-E. Ordinarily, when a fluorescent lamp reaches the end of its normal life, it begins to blink constantly because the starter is still trying to start the worn-out lamp. The No-Blink starter eliminates the flicker by automatically cutting out the dead lamp, thus prolonging the life of the starter.

The folder explains why properly designed lampholders are important. Six types of rotating lock lampholders are shown. Also illustrated in the folder are "butt-on" lampholders, weatherproof lampholders, combination ejector type lampholder and starter socket, and miniature lampholders. The function of ballasts in fluorescent lighting is explained.

Brazing Products Aid In Repairing Tools

NEW YORK CITY—War demands for high production are causing more breakage among vital cutting tools than usual, while getting new tools is a slow and expensive process, the makers of Easy-Flo brazing products have pointed out.

Using examples of mended tools, they recommend this product to repair broken tools speedily, insuring an even longer life for costly tools that would otherwise be discarded.

Cemented tungsten carbides and various high speed steels used in cutting tools can be joined quickly and permanently to tool shanks with Easy-Flo No. 3, the manufacturers claim.

Blackout Bulb Color Changed To Orange

BROOKLYN — Most important among several specification changes in the Wabash Appliance Corp. blackout bulb is in color of light from blue and red to the deep orange recommended by the Office of Civilian Defense, the corporation has stated.

The deep orange light that the new unit provides is said to be ample to permit room occupants to see each other plainly, as well as furniture, doors, and windows.

Other recent changes reported in the silver-lined blackout bulb as a result of tests in city-wide blackouts throughout the country are in size which is smaller, in reduced current consumption to 15 watts, in elimination of the former built-in reflector, and in the improved type of heavy black silicate coating to prevent light leakage.

Made to fit any household socket, the blackout bulb was introduced in January.

Identification Tags Made of Heavy Paper

LOS ANGELES—As a substitute for plates and identification tags formerly made out of metal, Avery Adhesives here has developed "Kum-Kleen," a heavy, stiff paper product with a glossy surface.

The company claims this substitute adheres permanently to any smooth surface, including metals, glass, plastics, enamel, varnish, and wood. It is applied without moistening and will adhere even when exposed to high temperatures or changing climatic conditions.

Although "Kum-Kleen" eliminates the necessity of drilling, taping, and riveting in application, it has the permanent quality of metal tags, it is said.

For Defense
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INDUSTRIAL
WATER COOLERS
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The Machine For Your Next Job...
If it's a refrigeration job ...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.
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ALCO VALVE COMPANY
Engineered Refrigerant Controls — ALCO — For Highest Evaporator Efficiency
2628 BIG BEND BLVD. ST. LOUIS, MO. U. S. A.

April 17, 1942

To Our Customers:

Attending the Refrigeration and Air Conditioning Conference in Chicago May 11th and 12th, will take your valuable time and effort. We believe it will be worth it, and hope we will see you there.

General meetings and conference discussions with men representing the various phases of our industry will do much to help us cope with our country's war production effort, and to meet the ever changing conditions brought about by the war. The broad picture of the industry's problems, which we are bound to get at this meeting, will make us better able to attack our own problems with realism and understanding.

Frankly, we will welcome the opportunity of discussing our mutual problems with you. There are many things which we have done in an effort to keep you supplied with Alco Valves. Most of this work you have never heard about, and we would like to tell you all about it.

The very nature of Alco products requires that stainless steels and other scarce materials be employed in their construction. This fact, plus Governmental restrictions, has made it difficult (and sometimes impossible) to supply our customers their normal requirements. We have made numerous substitutions, and we have re-designed our valves a number of times in an effort to use less critical materials. This, too, we would like to explain to you.

A sizable increase in our productive capacity has enabled us to take our share of the war production in building aircraft controls, and in continuing to supply the Army and the Navy with Alco Valves as we have done for the past ten years.

We are looking forward to meeting with you in Chicago, for we are anxious to discuss with you your problems as well as our own, and because we feel certain that we will both benefit by this meeting.

Sincerely yours,
ALCO VALVE COMPANY
A. B. Schellenberg
A. B. Schellenberg
President

ABS:ER

HERMAN GOLDBERG CO.
MANUFACTURERS' AGENT
RANCO CONTROLS — ANSUL REFRIGERANTS
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Lockers 'Conveyed' To Customer In Model Salem, Ohio Plant

Installation Demonstrates Hallwood Design

SALEM, Ohio—A frozen food locker plant using the Hallwood automatic locker system has been built by the Salem Engineering Co. The plant is known as the "Family Frozen Food Storage" and is owned by S. F. Keener, president of Salem Engineering. It will serve as a model for this type of a locker plant.

The Salem firm designed and built the plant in conjunction with Nathan A. Hallwood, inventor of the locker system, and the Tollerton Engineering Co., Carrier distributor in Youngstown.

Hallwood locker patents have been taken over by the Salem company which will now handle all sales, design and construction of the plants throughout the country under a new division of the firm. The Hallwood units will also be handled by two subsidiary organizations in the foreign market, Salem Engineering Co., Ltd. of London and Salem Engineering Co. (Canada), Ltd. of Toronto.

The building is a cream tile structure 35 x 70 feet with glass brick windows. It is fully insulated with eight inches of Palco Wool. Ceilings and woodwork are redwood.

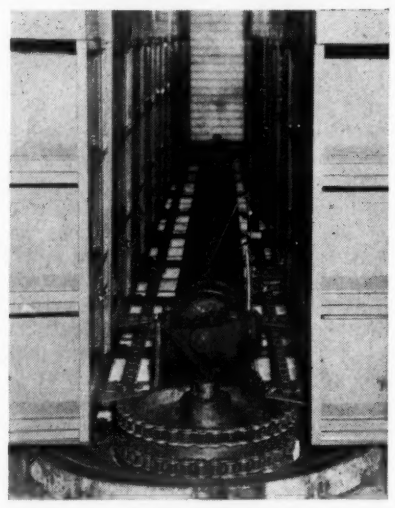
The layout consists of a two-tier locker room, aging room, two fast freeze cabinets, a work room equipped with smoker, a rest room and the front sales room.

ARRANGEMENT OF TIERS

There are four banks of lockers arranged in two tiers. Each tier is reached by ascending or descending stairs to the locker levels, one four feet above and the other four feet below the floor level. Wrought-iron rails follow the stairs and surround the open parts of the balcony area in front of the upper tier.

A control panel is located at each bank door. Numerically marked pushbuttons correspond to the number of the patron's locker. When the button is pushed, a conveyor system is put in operation bringing the desired section to the door in an average time of 37 seconds. While the lockers are in motion a red signal light on the panel is on. When the light goes out the locker is in place ready for access.

'Conveyor' System



This U-channel running through the middle of each bank is the heart of the automatic system. Locker sections are kept in place by guide rollers moving in the horizontal channel (bottom of photo). The sections are motivated by the conveyor chain to which they are attached by a yoke which slides against a roller mounted on the chain.

DOOR CONSTRUCTION

The patron stands in normal room temperature in front of his locker and never enters the refrigerated locker room. An air-lock of rubber flap gaskets seals the perimeter of the locker section when the door is open thus preventing expensive air spill and unpleasant drafts. Closing of the door pushes two rods above the section which automatically fold the gaskets away from the lockers, eliminating wear as well as the noise which would be caused by contact of the moving sections against the flaps.

Lockers themselves are 36 inches wide x 2 feet deep x 1 foot high enabling the customer to so arrange the contents as to facilitate easy removal. The reach into the rear of the locker is only 24 inches. This is possible because the conveyor-type arrangement does not require a long, narrow type locker. A woman of ordinary height can operate the top locker easily since its base is but 5 feet 2 inches from the floor.

Each locker is all-steel construction with a ⅛ inch bottom plate. They are made to Hallwood specifications by the Master Refrigerated Locker Systems. Each section has three door units above and three drawer units below.

The plant has 880 units in all, of which 480 are full sized lockers arranged six in a section and 20 sections or 120 lockers in a bank. In addition there are 400 half-units of the basket type located in the channel above the automatic mechanism.

Automatic operation is engineered around a 12-inch U-channel in the center of the bank. Each 6-locker section is mounted on four Bond casters using oilless graphited bronze bearings. The casters operate on 12-lb. rails which are mounted on steel ties set 3 feet apart and held in place by stationary clip. Ties are bolted into the backbone channel.

Each locker section has two guide-rollers which move on a horizontal path keeping the castors in proper place on the track. Channels for the guide-rollers are fastened to the ties and viceversa.

HOW THEY MOVE

The locker sections are motivated by a Link-Belt roller-bearing conveyor chain system using a 1½-inch pitch chain equipped with screw adjustment for taking up wear slack. Locker trucks are connected to the chain by means of a yoke which is, in turn, connected to the locker plate. The chain pin has a roller which contacts the yoke, eliminating wear on locker plate by friction of chain pin and yoke.

Each section makes a sharp corner swing on three casters, pivoting on the fourth or rear caster. The swing is made on a 3/16-inch steel plate. The base installation including rails, ties, rollers and casters occupies 7 1/16 inches below the floor level.

The locker sections are moved to the door by a Piqua geared-head electric motor in a manner similar to the operation of an electric elevator. The motor is 3-hp., 3 phase, 200 volts, 60 cycles. Movement is controlled by a micro-limit switch, hermetically sealed to keep cold from electrical points. It is connected in an insulated conduit. All other controls and relays are outside the refrigerated space.

This installation is equipped with every possible safety device. Opening of the door operates a cut-out switch which breaks the motor circuit. The system is also rendered inoperable by removal of the safety bar across the opening which is necessary before a person can enter the locker room.

The plant uses Carrier refrigeration units installed by H. Young of the Tollerton Engineering Co. staff. Water is taken from a 170-foot well at 42°. Rubber mountings are used throughout to eliminate vibration.

Locker room has a Carrier 5-ton compressor. Two cold-air ducts each with six outlets run through the upper banks first and then drop to the lower banks discharging cooled air at each outlet.

AIR THROUGH DUCTS

To secure uniform deflection a Carrier 15-Q-2 cold diffuser is located at the end of the locker room. It is powered by a 1-hp. Wagner 3 phase motor using 7.5 amp. and running at 1725 r.p.m. on 220 volts. The blower moves 4200 c.f.m. allowing complete passage through the unit twice a minute. The fin-type coil is rated at 2,200 B.t.u.

The Hallwood conveyor-type plant lends itself to forced air convection because no one enters the room. The forced air together with the movement of the lockers eliminates the factor of dead air. Exclusion of the human body from the room provides a major sanitation feature because foreign matter cannot be brought into the locker area. It also provides a refrigeration economy by eliminating body heat loads and the loads usually added by burning electric bulbs.

Air loss through the door has been stopped by use of the flap-seal. Height from the floor to the air ducts is but 7 feet 3 inches.

The locker room is maintained at a temperature of zero to 5°. Automatic hot-gas defrosting is provided and this is regulated for a complete removal every 12 hours under control of a Tork clock.

Adjoining the locker room is the aging room. Doors open into the rear workroom and into the front salesroom. An overhead track for easy movement of large cuts on hooks runs from the loading entrance through the chill room and out into the salesroom where meats can be easily shown to prospective purchasers. Within the room are spurs on the track so that each cut rolls into its place without handling.

STERILAMPS FOR AGING

Between the spurs hung with sides and quarters of meat are Steri-Lamps to give the meat full tenderizing while in the aging process. The hanging capacity alone is 10,000 lbs. Space is also provided for stacking poultry and smaller cuts.

The chill room is maintained at 36° by two Carrier 15-M-3 cold diffusers both handled in multiple operation by a Carrier 7-K-2 air-cooled 1½-hp. compressor. These diffusers operate continuously supplying 3,000 c.f.m. each. They have fin type coils developing 850 B.t.u. each and adjustable vertical and horizontal louvres. Relative humidity is maintained at about 92%.

The Salem plant has two fast freeze cabinets, one in the front salesroom convenient to the lockers as well as the aging room and wrapping counters. The other is at the end of the rear workroom. Temperatures are maintained at —20° F. in the cabinets and —35° F. on the contact plates. Each unit has a Carrier 3-hp. air-cooled machine.

The front cabinet has 9 plates size 22 x 72 inches. There are two expansion valves, one handling 4 plates while the other takes care of 5 plates. The rear cabinet is a 10-plate unit with 2 valves each handling 5 plates. The plate size is the same. The extra plate is located at the bottom for bulk fast freezing. Each cabinet has a daily capacity of 2,600 lbs.

Regulation of the refrigerating equipment is entrusted to Detroit No. 450 Lubricator temperature controls, one located in each cooled room. The locker room control is placed in the return air while the chill and fast freeze controls are located in the regular temperature areas.

The workroom at the rear features a Griffith gas-burning smokehouse for curing hams and bacon. Hickory sawdust is used except on some special bacon runs which get a hickory bark treatment. Temperature control up to 220° is provided and a manual smoke control allows maximum saturation. The smoker has a capacity of 500 lbs. of hams or 700 lbs. of bacon.

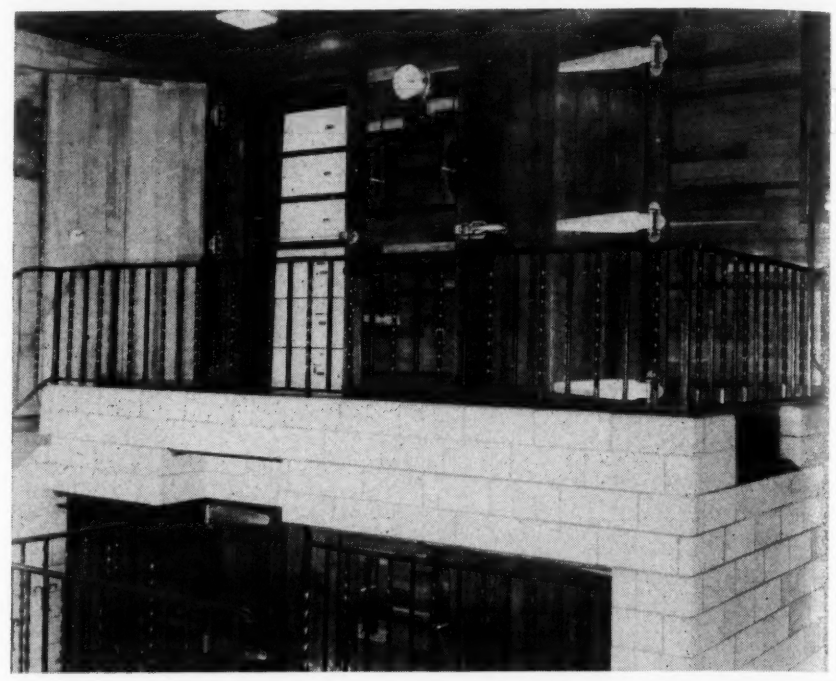
Also in the workroom are processing sinks and workboards, a Crane automatic water heater and the centralized control board for all electric lines. Overhead tracks for the meat hooks run from the rear loading door, where pickups are made directly from the trucks, onto scales where each incoming item is checked for weight. The tracks then run into the aging room through the rear door. Each processing order gets a job ticket and number when it arrives.

In the roomy sales and service section in front the customer transactions, wrapping and cutting take place. Along the side wall are the grinder and the wrapping counters. Each cut is double-wrapped with wax and butcher paper. Colored labels identify the type of meat thus:

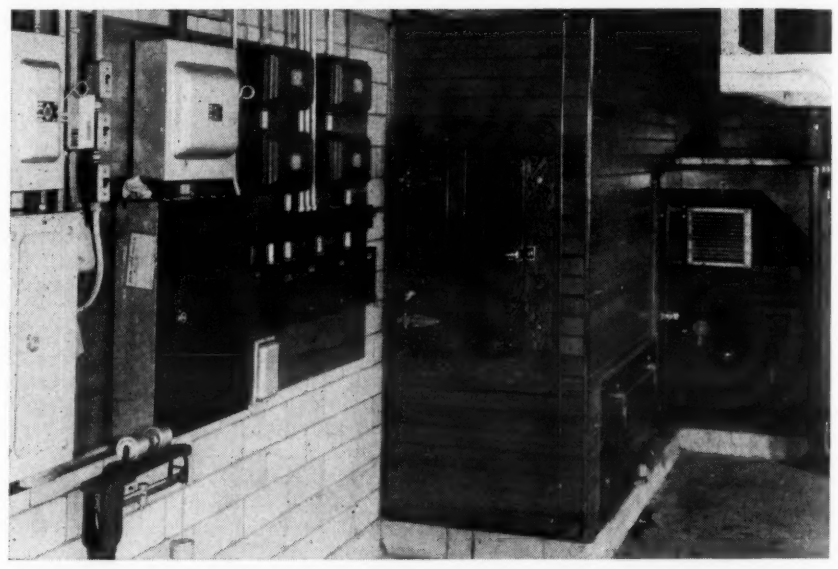
blue—veal
yellow—beef
red—pork
green—lamb
orange—poultry and game.

Each package also carries the job number rubber stamped, and is also marked by rubber stamp with the exact designation of the cut.

Where the Locker Comes To You



The four locker banks are set in two tiers equidistant above and below the floor level. A six-high locker section can be seen in the open door. Note inside handle on door, safety bar, cut-out switch, and air-lock folder at top. Control boards are conveniently mounted next to door.

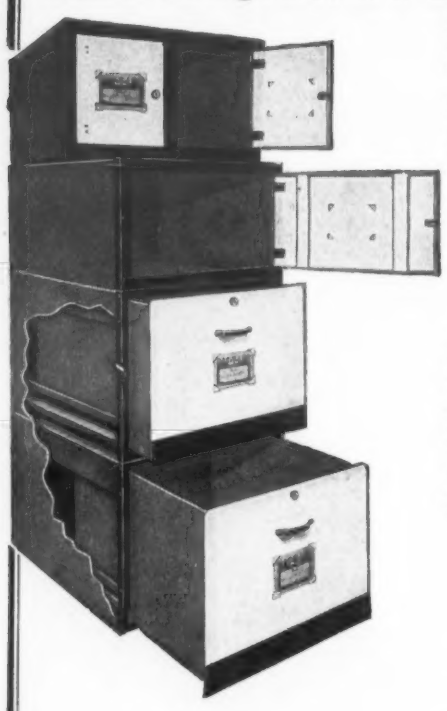


Corner of rear workroom showing central electric control panel and locker room refrigeration equipment. Inside the cabinet, which has two doors for easy access to equipment, is the cold diffuser which moves 4,200 c.f.m. At the right is the 5-ton compressor.

Master Lockers Are In Use From Coast To Coast

No matter where you go, you will find that the Master-Equipped Locker Plant is the most outstanding plant of its kind.

They are contributing to the Victory Program by showing their patrons how to safeguard the health of their families through the use of modern refrigerated lockers.



It's July in January when they store fresh fruits and vegetables in a Master Locker.

"The Choice of the Industry"

is an interesting folder on MASTERBUILT Lockers and is sent postpaid upon request. It contains information you will be interested in. Send for it.

Master products are endorsed by and sold only through distributors of refrigeration and insulation.

A Master representative will be at Stevens Hotel, Chicago, during All-Industry Meeting, May 11-12-13.

MASTER REFRIGERATED LOCKER SYSTEMS, Inc.
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If Air Conditioning Dealers Are Forced Out of Business, Who's To Install Vital Jobs?

So Asks H. C. LeVine, Detroit Contractor, Who Cites Many Uses In War Production

DETROIT—"If the air conditioning contractor who specializes in the larger installations is forced out of business because he is denied the materials necessary to make installations, who is going to engineer and install the air conditioning jobs which each day are proving more vital to the War Production program?" wonders H. C. LeVine, Atmospheric Control Co., Detroit distributor-contractor.

He was not arguing with the decisisons of any government agencies as to what was essential or non-essential to the War Effort, Mr. LeVine pointed out, but he raised the question on the survival of skilled concerns, because he believes that it is a problem that the War Production board experts may not have considered.

"There are perhaps a half dozen firms in Detroit who have the knowledge and skills required to engineer and supervise the installation of refrigeration installations of 50 tons or over, or problems of air control in which large volumes of air or critical temperatures are involved.

As things stand now, the future looks pretty black for the type of contractor that Mr. LeVine describes.

"Of the A-1-a priority business there's scarcely enough for any one of us," he points out. "If we could even be assured of the materials needed to finish off all of our priority business—or if we could get a liberal interpretation of what constitutes an essential installation—we might be able to get by."

U. S. Standards For Gauges

Possibly the most typical of the very essential jobs which these contractors install for the War Production effort is the gauge test rooms in the U. S. Ordnance Department laboratories.

In these laboratories the gauges used in the plants producing munitions and other products for the Ordnance Department are brought in to be checked and calibrated so that they will be 100% accurate.

According to standards set by the department the gauges must be checked in a uniform atmosphere of 68° F. temperature and 50% relative humidity—and the uniformity of temperature must be such that a reading taken by a thermometer hung over one of the test setups must correspond exactly with that of the thermostat upon the wall.

These conditions must be maintained at all times because gauges are being brought in and out at all times, and upon being brought in they must be left for a period of time to become acclimated or "balanced" with the surrounding atmosphere before being checked.

The humidity control is merely a matter of preventing any possible corrosion that might be caused by perspiration effect.

"The problem from an air conditioning standpoint is that of cooling the air down to a specified dewpoint and then re-heating it to achieve the desired conditions," says Mr. LeVine. "The man who installs the job must have a thorough knowledge of the properties of air and the 'know-how' to set up the installation and the 2-stage control which is necessary. It isn't a job that a plumber can do.

"Similar installations are necessary in plants producing airplane parts and other War materials in which tolerances and fits down to 100,000ths of an inch are to be maintained—it would be virtually impossible to accomplish these tasks without the aid of air conditioning.

Dope Rooms, Safety Glass

"Air conditioning has been proved vital to the proper operation of the 'dope' or paint spray rooms in many War plants, being used to sterilize the air so a uniform finish will be imparted to all pieces.

"Safety glass used in airplanes and combat vehicles cannot be produced other than in air conditioned rooms. Temperature, humidity, and cleanliness of the air are all important factors, for the vinyl plastic that binds the thicknesses of glass must be absolutely clean and moisture free or the sheets won't fit together properly.

"More than ever before our armed forces are traveling on wheels—and that means roller bearings are a part of our essential War materials. The steel balls need protection from the air, particularly during assembly, as the slightest amount of moisture might cause enough corrosion to make them imperfect. One recent job for a ball-bearing assembly and inspection room, requiring uniform temperatures and humidities from day to day, required 60 tons of refrigeration for cooling.

"Spark plugs are another part without which our armed forces couldn't get adequate motor transport or our airplanes couldn't fly. A recent air conditioning job in a spark plug plant maintains constant conditions in a glass-enclosed control room for the department in which the porcelain is baked onto the plugs.

"Then there are the pharmaceutical plants—in which are manufactured the serums, powders, tablets, and medicines of all kinds needed by armed forces and the civilian population alike. These pharmaceutical plants could not function properly without air conditioning."

'Industrial Specialists'

But there are other jobs not directly connected with the processing of war materials in which air conditioning's role, believes Mr. LeVine, is just as important.

"One recent installation involved two 60-ton drinking water systems for a War Production plant," he explained. "This meant not only the work of setting up for operation two very large refrigerating machines, but also the shell-and-tube coolers used in the actual cooling of the water and then the running of the lines to the various fountains.

"This is the kind of a job that calls for a 'technical, industrial specialist' in a certain field—and one which calls for qualified, experienced men.

"Then there is another type of function for air conditioning in this War effort—an unusual case, brought about by increased employment, and 24 hour shifts.

"It is brought to mind by a recent job on which we were called in. This plant had a room in which the women employes ate their lunch—a room in which some 20 to 25 girls normally spent their noon-hour, but in which some 75 are now crowded.

"The lack of ventilation and accompanying odors in this room became so bad that the employes threatened to walk out unless the condition was corrected.

"There was an old ventilating system installed, but we had to redesign it completely—an engineering job that couldn't have been handled by the ordinary sheet metal firm.

"This firm was operating under a blanket priority and got this job for us on an A-1-a priority, but all such jobs that are perhaps just as vital to the War effort may not be so fortunate priority-wise. It appears that some form of help or relief must come from the government."

Where Air Conditioning Is a 'Must'

Many of the operations in a factory specializing in optical glass products, such as the one shown here, could not be performed to meet the high requirements of the Army and Navy, without the use of air conditioning. Note the duct in top left of the photograph.

ENLISTED!

To keep the commercial refrigeration equipment of our nation in efficient operation is a war-time assignment of first line importance. It means wholesome, healthful food for military and civilian population, and the avoidance of spoilage waste.

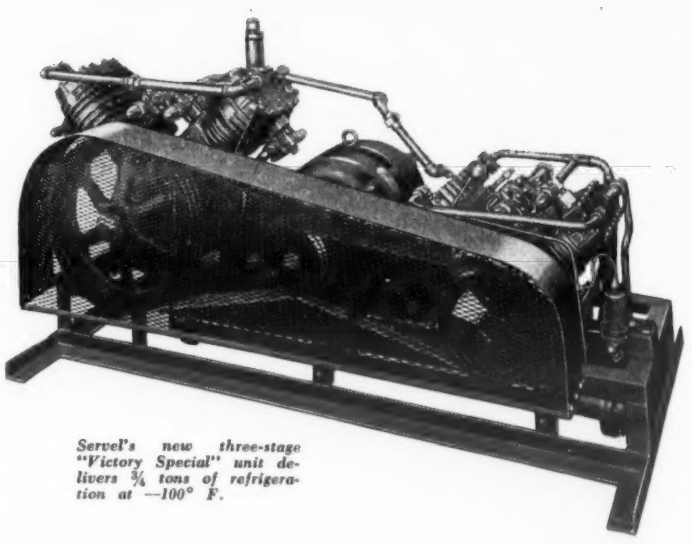
Refrigeration service men are enlisted for the duration in this vital task. And Penn is enlisted with them. In addition to our direct work for the armed forces we are prepared to furnish controls...on priority orders...for both existing and new equipment required to preserve the nation's food supply. For assurance of efficient operation depend on Penn automatic controls.
Penn Electric Switch Co., Goshen, Indiana.

PENN CONTROLS
REFRIGERATION AIR CONDITIONING ENGINE HEATING PUMPING AND AIR COMPRESSOR

There Is No Substitute For Experience

SPECIALIZING FOR WAR PRODUCTION

TO MEET the highly specialized needs of the nation's war program, Servel is backing up its comprehensive "Victory Sales Plan" with *special* engineering, *special* manufacturing, and *special* application assistance to customers.



Servel's new three-stage "Victory Special" unit delivers ¾ tons of refrigeration at —100° F.

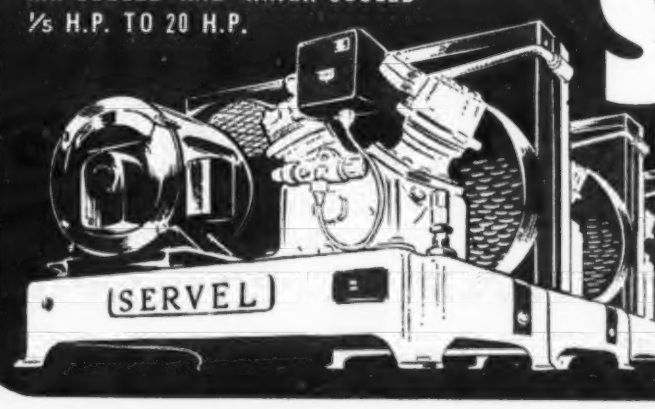
Metal aging, instrument checking, laboratory testing, and other vital operations in defense production require extremes of temperature beyond the range of ordinary refrigeration equipment.

Servel's new three-stage machine unit (illustrated here) is typical of the specialized equipment Servel has developed for unusual war needs. This unique unit, using Freon-12 as a refrigerant, delivers approximately *¾ tons of refrigeration at 100° below zero.*

Servel's "Victory Sales Plan" will help you find and sell prospects for such equipment in the nation's armed forces, defense industries, and essential civilian activities.

Servel invites inquiries on hard-to-do jobs, particularly in defense work. Write today to Servel, Inc., Electric Refrigeration & Air Conditioning Division, Evansville, Indiana.

OVER 80 STANDARD MODELS—
AIR-COOLED AND WATER-COOLED
⅛ H.P. TO 20 H.P.



SERVEL
COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

What to Check When Electric Motor Does Not Start

Motor Troubles & Their Correction

Editor's Note: Following is part of a section on servicing motors, in a series of articles on motor construction and operation.

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

Complaint - -

C. Excessive Brush and Commutator Wear and Sparking

(Note: Causes listed through C-11 apply to all motors equipped with brushes.)

1. Excessive Load

"Excessive load" has been partially covered in the general part of Section A under "Motor Overheats" and in Section A 3. On direct current motors excessive load may cause distress in the commutation. This is evidenced by sparking, pitting of the commutator, and over-heating of the commutator with possible coloring of the commutator bars from the heat.

Single phase motors, equipped with commutators, may show some of these same indications but, as the brushes and commutator are only subjected to heavy duty during starting, the indications may not be so pronounced.

These single phase motors, when overloaded, will show a definite tendency to be slow in bringing the load up to full speed—especially at the point where the brush raising, or commutator short circuiting, mechanism operates on motors equipped with them.

2. Dirty Commutator

"Dirty commutator" is similar to any dirty electrical contact. In this case the contact is between the brushes and the commutator. The current carrying ability of the contact is reduced by the dirt and lends to sparking and heating. Abrasive dirt, such as ashes, may cause excessive wear of the commutator and brushes.

Dirt can be wiped off the commutator with a piece of canvas or other cloth that is free of lint. The simplest, and most effective, arrangement for preventing trouble from dirt is to exclude it from the motor location. The customer may be able to readily install a partition to enclose the source of dirt. It may be possible to move a condensing unit to a cleaner location. In extreme cases special motors, not seriously affected by dirt, can be used.

NOTE: Oil or grease should never be used on the surface of a commutator. They tend to cause accumulations of dirt and lead to short circuits.

3. Poor Brush Fit to Commutator

"Poor brush fit to commutator" seems to occur chiefly when brushes are replaced. On new motors the manufacturer usually does a reasonably good job of sanding the brushes and running them in—running the motor at no load for a long enough time so that about two-thirds of the brush surface develops the desirable shiny black appearance. The brushes for some fractional horsepower motors are ground to the proper shape so that sanding is not necessary when replacing brushes.

As a general thing particular care should be used, when replacing brushes which rest on the commutator continuously during operation, to insure that there is a good brush contact. When brushes are not properly fitted, sparking, pitting of the commutator, and overheating of the commutator will tend to develop ultimately.

In sanding brushes coarse sandpaper can be used if there is considerable of the brush to be cut away. Do not use emery cloth as some of the abrasive may become imbedded in the brush and cause damage to the commutator later. The coarse sandpaper should be followed by fine sandpaper—the coarse should be omitted if only a little sanding is required. In all the sandpapering a strip of the paper is placed on the commutator, between the brush and the commutator surface, with the rough side toward the brush. The brush spring presses the brush against the sandpaper.

The sandpaper is then drawn in the same direction that the commutator surface will travel when the motor is running. In doing this the sandpaper is held against the surface of the commutator so that the whole surface of the brush will become exactly right to fit the commutator. The brush is then raised, the sandpaper returned to its original position, the brush lowered into position and the operation is repeated. This is continued until inspection of the brush surface shows that it has acquired the proper shape.

After all brushes have been sanded the motor should be run without load until at least two thirds of the brush surface has the shiny finish that indicates good contact.

Occasionally it may not be possible to run the motor at no load for sufficient time to obtain this two-thirds contact. In such a case it should be run as long as possible, the brush surfaces should be inspected to make sure that they will run in properly in a very short time, and the commutation should be observed to make sure that there is not excessive sparking.

Fig. 53—Changing Brush

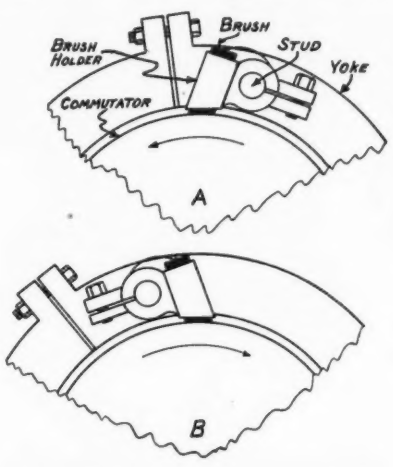


Fig. 53—In reversing a direct current motor which has the brushes set at an angle as shown here, it is necessary to replace the brushes so that they make contact at exactly the same point on the commutator. The armature is blocked and the yoke moved to the new position.

4. Rough Commuator

"Rough commutator" can result from any cause of excessive brush and commutator wear and sparking. If the roughness is not too severe the commutator can be smoothed by holding a piece of sandpaper, on a wooden block, against the commutator while the motor runs without load. A commutator stone, which is a piece of ordinary grindstone, can be used instead of the sandpaper. Emery cloth and emery stone should never be used for this purpose as a particle of the emery may become imbedded in one of the brushes and, later, cause serious scoring of the commutator.

If the commutator is too rough for such corrective measures, the armature should be removed and the commutator turned down in a lathe. As little material as possible should be removed from the commutator. Only light cuts should be taken to avoid excessive strain on the parts with the possibility of loosening the commutator assembly.

If the insulation between the copper segments was originally cut below the surface of the copper it should be scraped out, to establish the original condition, after the commutator is turned down. After any appreciable sandpapering, and always after a commutator is turned down, the brushes should be sanded and run in as covered in Section C 3 on "Poor Brush Fit to Commutator."

Commutator roughness also can be caused by wear of the commutator such that the insulation between the copper segments protrudes beyond the commutator surface. In such a case the insulation can be scraped away until its edge is slightly below the commutator surface. However, in such cases the condition of the commutator surface will usually be such that it will be advisable to turn down the commutator slightly as covered above.

5. Brushes Worn Down Too Far

"Brushes worn down too far" tends to indicate that the equipment has not been receiving adequate maintenance attention. The pigtail may interfere with the seating of the brush on the commutator; the brush spring may be unable to maintain the proper pressure of the brush on the commutator; or in extreme cases the metal in the brush, where the pigtail connects, may touch the commutator.

All of these lead to sparking and damage to the commutator. It is good insurance, from the standpoints of motor life and continuity of service, to replace brushes if there is any question at all of their wearing down too far before the next maintenance call.

6. Brushes Stick in Brush Holders

"Brushes stick in brush holders" results in poor contact of the brush on the commutator. The brush may be so cocked, by the tight fit of the brush in its holder, that only an edge of the brush makes contact with the commutator. The friction of the brush holder on the brush may neutralize some of the brush spring pressure as the brush attempts to follow the slight irregularities of the commutator surface. This results in little, or no, brush pressure in certain positions of the armature. Light sandpapering of the sides of the brush, by rubbing it on a flat piece of sandpaper, will relieve the tightness. Care should be exercised not to get the brush too loose in the brush holder.

After this sandpapering is done it is advisable to sand the brushes and run them in as covered in Section C 3 on "Poor Brush Fit to Commutator." On motors that have adjustable brush holders, as was shown in Fig. 53, the face of the holder should be approximately ⅛ inch from the surface of the commutator. Exceeding this dimension appreciably results in wedging of the brush in the holder.

7. Incorrect Brush Pressure

"Incorrect brush pressure," if excessive, may cause the commutator to get hot from the friction; may cause an objectionable increase in brush noise; or may wear out the brushes and commutator rapidly. The brush pressure should be between 2 and 2½ lbs. per square inch of area of brush contact on the commutator. If the brush pressure is too low, sparking, and heating of the commutator due to the current passing through the relatively high resistance contact, may occur.

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New Plate Evaporators Built By Green & Sons Use No Copper; High Heat Transfer Rating Claimed

PHILADELPHIA—A complete line of full-flooded plate-type evaporators for commercial refrigeration applications, bearing the name "Polar Refrigeration Plates," has been developed and introduced to the field by Robert M. Green & Sons, Inc., of this city.

These plates use no copper and "practically no critical materials," the manufacturer of the product declares.

Principal advantages claimed for the plates are that they have maximum "K" factor ratings, that they are entirely prime refrigeration surface, provide unrestricted flow of refrigerant, that they cut pressure drop and force oil return, and that they conserve space.

Also introduced for use with the "Polar" plates is the "Heador" plate, which is said to combine the functions of a heat exchanger, ebullation, accumulator, dryer, oil return, and pressure drop reducer.

These evaporator plates are made in several different styles for various types of applications. The "flat plates," recommended where space within the refrigerated area is at a premium, are designed for use in walk-in refrigerators and storage rooms, and also in beverage coolers, meat boxes, display cases, and some low temperature cabinet installations. If desired, the flat plates can be supplied with baffles.

The envelope type plate provides a completely finished four-sided liner, especially adaptable for ice cream cabinet construction. The plates are also available in a series of joined together lateral type design, for low temperature cabinets and sharp freezer boxes.

Another type of design is the coil-box construction with plates, suitable for water bath and liquid cooling applications. The plate in this construction is applied so that an ice bank is formed in the water bath.

Bunker type plates are available where bunker construction in a box is encountered. A shelf-type sharp freezer in which the plates are used as shelves is also available.

Two special designs of the "Polar" plates for food dispensing applications have also been developed. One is a cafeteria "frost bank" that becomes the integral part of the cafeteria service counter. It provides the refrigeration for foods on display, as well as for those in the storage compartment under the counter. In operation, this plate becomes frosted, creating an artificial bank of frozen "snow" on which foods can be displayed.

The second application is the cafeteria salad pan—a plate made in the form of a shallow pan and aimed to be installed in an insulated compartment in the counter.

The company declares that "Polar" plates are being installed in hardening cabinets on many fighting ships in the U. S. Navy.

Knoxville Commercial Refrigerator Sales Double Total Of March, 1941

KNOXVILLE, Tenn. — Total sales of commercial electric refrigerators by Knoxville dealers during March was almost double that of the corresponding month last year, with 15 units at an average sales price of $1,996 being sold last month as compared with eight units at an average price of $763 in March, 1941, statistics released by Knoxville Electric Power & Water Board this week reveal.

Commercial	No. of Units	Average Sales Price	Total Sales Value
Refrigerators	15	$1,996	$29,932
Ranges	4	140	560
Steam Tables	1	34	34
Water Heaters	2	90	180
Other Motor Devices	1	310	310
Motors	3	80	240
Other Equipment	8	210	1,677
Total	34		$32,933

Budget Plan For Service Repairs Is Adopted By Simpson's

NEW ORLEANS—Switching its emphasis under war conditions from sales of new refrigerators to 100% service, Simpsons' Refrigeration Service & Sales Co. here has developed a "club plan" for limited-income homeowners whereby those unable to accumulate $20 or $25 for a major repair job can budget the amount over three equal payments.

The club plan, although it was introduced two years ago, is particularly important under war conditions, according to A. A. Simpson.

"We developed the plan because it enabled us to get service business with people who would otherwise let their boxes stand idle," Simpson explains. "New Orleans average income is considerably lower than in other cities of comparable size; and thus unless the customer can find some way of budgeting service costs on her refrigerator, the chances are that she will do nothing about it. We have doubled the number of prospects for refrigeration service by using this system."

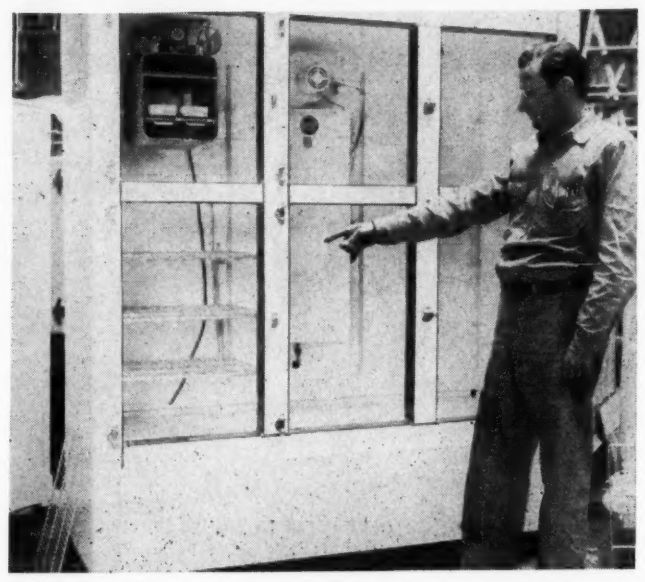
The payment system used consists of a cash payment up to $10, and two equal payments for the balance if it runs over that amount. Thus a customer whose box requires $27 worth of repairs pays $10 at the time it is reconditioned, and two payments of $8.50 during the following two months. If the total amount runs above $30, such as a complete overhaul of a refrigerator, the customer can arrange for three equal payments after the initial $10 down.

The club plan terms are written up on mimeographed forms prepared by Simpson for the purpose, on which the customer acknowledges the work which is itemized on one side of the sheet, and her willingness to pay a specified amount during the next two months.

In two years, according to Simpson, there have been absolutely no losses; chiefly because Simpson Refrigeration Sales & Service Company employes wear white coverall uniforms bearing the company name, and write up the club plan on a businesslike basis which impresses the customer with its methods. There are no collection costs, since refrigeration servicemen themselves call back for the successive payments.

"We always have calls in the same section of the city at approximately the time the next payment is due" Simpson pointed out, "and we find that the customer is always more willing to pay the same man who did the work on her box than a stranger calling upon her."

Reach-In Refrigerator Is Rebuilt To Provide 35-Ft. Cabinet For Home



George W. Mims of Frigid Refrigeration Service Co., New Orleans, points to some of the features of his home-made "duration" refrigerator. It is the type of refrigerator that any service man could construct from used equipment.

* * *

NEW ORLEANS—Just about the largest home refrigerator ever constructed by Frigid Refrigeration Service Co. here, large refrigeration service dealership which handles many unusual installations, is a 35 sq. ft. cabinet (see accompanying picture) which was constructed for a large Louisiana home as "refrigeration insurance" for the duration of the war.

It is the kind of a refrigerator which other servicemen may be able to make out of old parts.

The huge refrigerator consists of a remodeled reach-in Westinghouse refrigerator, which was completely torn down to change it into a combination quick-freezer and storage box.

Ten and two-thirds square feet on the left side will be used as a sharp freezer and ice making section, partitioned off from the storage section by a 1-inch insulated wall. There are three banks of ¼-inch coils in the sharp-freeze section, providing a temperature of 10°.

In the upper section are located 10 ice trays with a capacity of 180 cubes. The remainder of the box is cooled by a dome-type gun cooler, circulating refrigerated air evenly throughout the box.

The sharp-freeze section is powered with a ⅓-hp. Westinghouse compressor, and the storage section has a ¼-ton Westinghouse unit for regular storage. Two heat exchangers on both sets of coils are attached to the back of the refrigerator, for greater efficiency.

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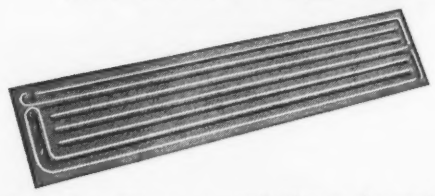

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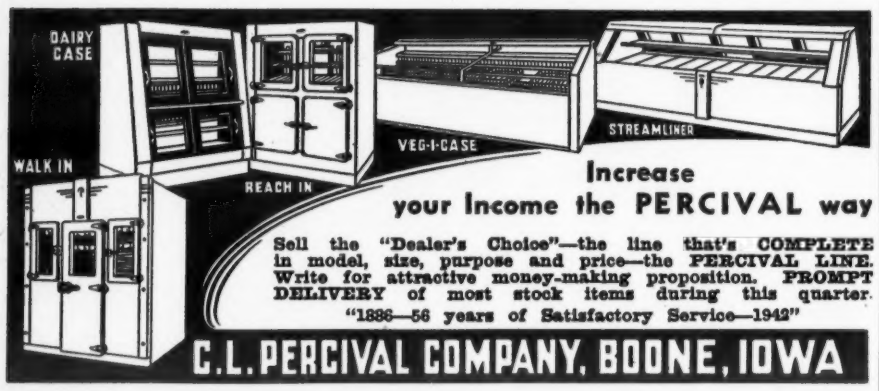

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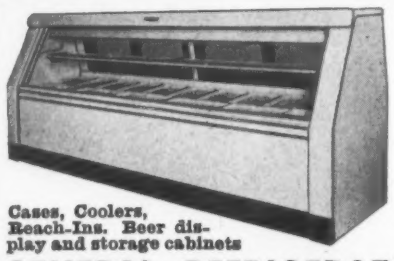

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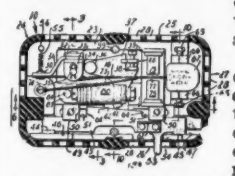
PATENTS

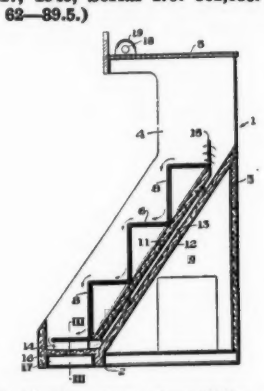
Weeks of April 14 & 21

2,279,305. THERMOSTAT. George Forrest Drake, Rockford, Ill., assignor to Barber-Colman Co., Rockford, Ill., a corporation of Illinois. Application Jan. 17, 1938, Serial No. 185,388. 9 Claims. (Cl. 200—139.)

1. A thermostat adapted to be mounted on the wall of a room and having a horizontally extending contact carrying element movable vertically in response to ambient temperature changes, a contact cooperating with the contact of said element, a housing enclosing said element and apertured for the circulation of air therearound, a closure within said housing around said contacts and one end portion of said element, and means within said housing operable to prevent dust particles settling on said element exteriorly of the housing from creeping along the element and onto the active surfaces of said contacts.

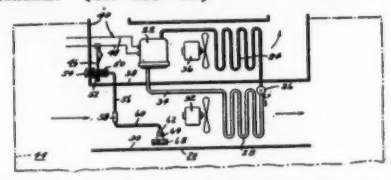


2,279,484. REFRIGERATED DISPLAY CASE. Clarence P. Munshower, Columbus, Ohio, assignor to Colbar, Inc., Columbus, Ohio, a corporation of Ohio. Application Oct. 17, 1940, Serial No. 361,588. 5 Claims. (Cl. 62—89.5.)



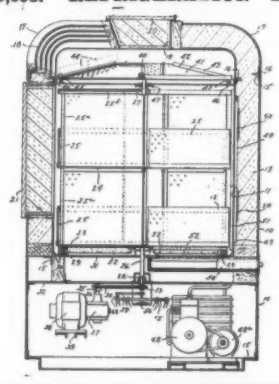
1. A display case comprising a housing, a refrigerated shelf structure of stepped form stationarily mounted within said housing, and means arranged at the back of said shelf structure and within the housing for circulating air from adjacent the bottom of the shelf structure to the top thereof.

2,279,535. REFRIGERATING APPARATUS. Carl A. Stickel, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 28, 1939, Serial No. 258,968. 10 Claims. (Cl. 236—44.)



10. In combination, an air tempering means, a control means for said air tempering means, said control means including a fluid motor operating means and a plurality of thermostat bulbs operably connected to said operating means, one of said thermostat bulbs being responsive to dry bulb temperatures and being charged with absorbent material effective substantially in the proportion that dry bulb temperatures influence the effective temperature in the operating range, another of said thermostat bulbs being responsive to wet bulb temperatures and being charged with absorbent material effective substantially in the proportion that wet bulb temperatures influence the effective temperature in the operating range, said thermostat bulbs being charged with a gas capable of being absorbed by the absorbent material.

2,279,558. REFRIGERATION DEVICE.

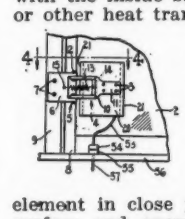


Leonard F. Clerc, Chicago, Ill. Application Sept. 20, 1940, Serial No. 357,573. .12 Claims. (Cl. 62—89.5.)

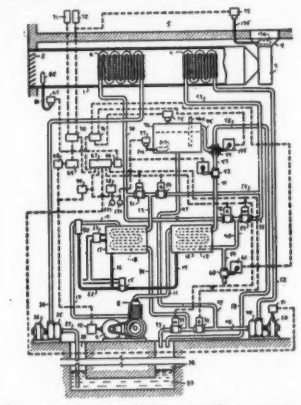
1. In a refrigeration device, including an outer shell, an inner shell, and coils of a refrigerating machine in contact with said inner shell, the combination of a storage section rotatable in the space defined by said inner shell, the said storage section consisting of two or more shelves secured to one another by means of perforated walls, there being also a display section comprising another shelf positioned above said storage shelves, and means including tracks for supporting said shelves.

2,279,582. CONTROL DEVICE. Philip S. Russel, Detroit, Mich., assignor to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Original application May 14, 1935, Serial No. 21,353. Divided and this application June 8, 1938, Serial No. 212,545. 9 Claims. (Cl. 236—44.)

1. A control device for arrangement with the inside surface of a window pane or other heat transmitting room wall surface comprising an element responsive to an air condition at said inside surface, and a movably mounted supporting means carrying said element and operable in one position to hold said element in close proximity to said inside surface and operable in another position to hold said element out of such proximity and in spaced relation to said inside surface.

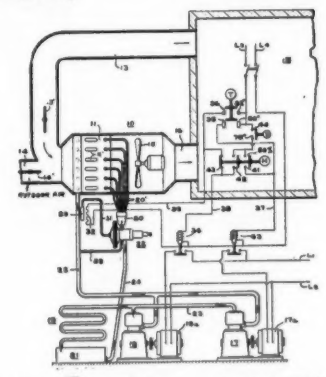


2,279,657. AIR CONDITIONING SYSTEM. Robert B. P. Crawford, Miami, Fla. Application Feb. 6, 1939, Serial No. 254,839. 14 Claims. (Cl. 62—6.)



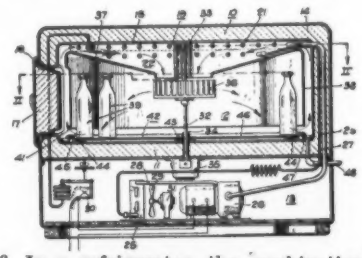
3. In a reversible cycle system for heating and cooling, in combination, a refrigeration system having an evaporator device and a condenser device, a heat exchanger in heat exchange relationship with a medium to be conditioned, a storage tank for fluid, means for selectively connecting said heat exchanger into fluid circulating relationship with either said evaporator device or condenser device while maintaining said storage tank connected for receiving fluid from one of said devices, a flow controller for controlling the flow of fluid through said one device, and means responsive to the temperature of the fluid for controlling said flow controller.

2,279,787. AIR CONDITIONING APPARATUS. Leroy G. Huggins, Mansfield, Ohio, assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Aug. 6, 1937, Serial No. 157,681. 9 Claims. (Cl. 62—6.)



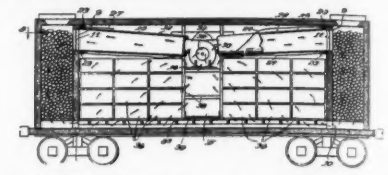
6. In air cooling and dehumidifying apparatus, the combination of evaporator means, variable capacity compressor means and a condenser connected in a refrigerant circuit, means operable automatically to increase and decrease both the portion of the evaporator means containing liquid refrigerant and the rate of fluid translation (by volume) of the compressor means in response to increase and decrease, respectively, in temperature of air, and means operable automatically to increase said rate of fluid translation and thereby also the ratio of said rate of fluid translation to the portion of the evaporator means containing liquid refrigerant in response to increase in humidity of air.

2,279,804. REFRIGERATION APPARATUS. John G. Walz, Holyoke, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application April 15, 1939, Serial No. 267,983. 9 Claims. (Cl. 62—104.)



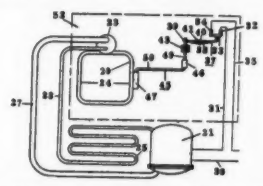
6. In a refrigerator, the combination of a circular insulated chamber providing a storage space for the articles to be refrigerated, a cooling unit in the upper portion of said chamber, a fan below said cooling unit, a shroud for conducting the condensate of said cooling unit to said fan, a rotatable platform in said chamber for supporting the articles to be refrigerated, an access opening in the side wall of said chamber, and a door for said opening, said rotatable platform being arranged to convey articles stored thereon adjacent said access opening, said fan being arranged to circulate the air of said chamber through the cooling unit and across the articles to be refrigerated and to spray the condensate of said cooling unit over said articles.

2,279,847. REFRIGERATING CAR. Harry Y. Stebbins, Los Angeles, Calif., assignor to General American Precooling Corp., Chicago, Ill., a corporation of Delaware. Application Oct. 21, 1940, Serial No. 362,132. 10 Claims. (Cl. 62—24.)



1. In combination with a refrigerator car having a refrigerant compartment at one end and a load-receiving space opening into said compartment, means for forcing air into said compartment comprising air-forcing means, a duct of non-rigid material communicating with said air-forcing means and with the opening to said compartment, means releasably holding said duct in communication with said opening, and means on said duct accessible for operation by the operator without mounting the load for actuating said third-named means to release said duct and serving as a means to move said duct along the load.

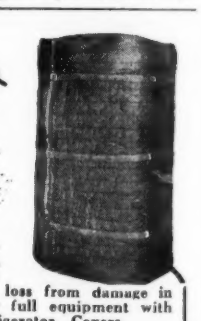
2,279,888. CONTROL SYSTEM. Walter V. Hobbs, Columbus, Ohio, assignor to Ranco, Inc., Columbus, Ohio, a corporation of Ohio. Application May 31, 1940, Serial No. 338,002. 23 Claims. (Cl. 62—4.)



1. Refrigerating apparatus comprising in combination, a heat absorber; means for cyclically circulating refrigerant through the absorber, each of the cycles including a running phase and an inactive phase; and control means including a closed system containing a volatile liquid, one portion of said system being responsive substantially solely and at all times to the temperature of the heat absorber, the quantity of liquid contained in said system and the relative capacity of said portion being such that all of said liquid is contained in said portion under one normal operating temperature of the heat absorber and under another normal operating temperature of the heat absorber the capacity of said portion is insufficient to hold all said liquid, a second portion of said system being subjected to the medium cooled by the heat absorber and being connected with the first mentioned portion to receive the

(Concluded on Page 23, Column 1)

Fulco ADJUSTABLE REFRIGERATOR COVERS



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KRAMER-TRENTON CO. TRENTON, N. J.

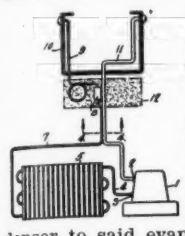
Patents (Cont.)

(Concluded from Page 22, Column 5)

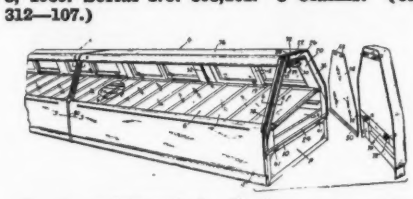
excess liquid from the first mentioned portion when the heat absorber is at the second mentioned operating temperature, and means responsive to condensation of the gas of the liquid in the first mentioned portion of said system for changing from one of the phases of the cycle of the circulating means to the other.

2,279,928. DOMESTIC REFRIGERATOR. Malcolm G. Shoemaker, Abington, Pa., assignor, by mesne assignments, to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application Sept. 21, 1940, Serial No. 357,815. 4 Claims. (Cl. 62—116.)

1. Refrigerating apparatus comprising, in combination, a heat insulated cabinet including a food storage compartment and a mechanism compartment, an evaporator in said food storage compartment, a compressor and a condenser in said mechanism compartment, a suction conduit connecting said evaporator and said compressor, a refrigerant feed line connecting said condenser to said evaporator, and a moisture retaining unit in said feed line and embedded in the insulation of said cabinet, at least a portion of said feed line between said condenser and said unit being in heat exchange relation with said suction line.

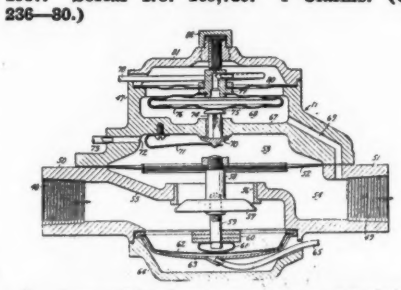


2,279,945. SECTIONAL REFRIGERATED DISPLAY CASE. Cyrus F. Hoffman, Trenton, N. J., assignor to C. V. Hill & Co., Inc., Trenton, N. J., a corporation of New Jersey. Application Dec. 8, 1939. Serial No. 308,161. 8 Claims. (Cl. 312—107.)



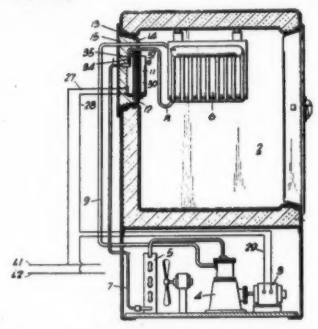
6. A refrigerated display case comprising a plurality of similar open ended sections each having an outer metallic shell and an inner metallic liner with insulating material located between the same, end frames on said sections each formed of non-metallic material and serving to space said outer shell from said inner liner, means on said end frames for connecting said sections together in end to end relation with the outer metallic shell of each section spaced from the inner metallic liner of the adjacent section and insulating end members closing the opposite ends of the terminal sections of said case.

2,280,051. REFRIGERATION. Sven W. E. Andersson, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Oct. 19, 1937. Serial No. 169,789. 4 Claims. (Cl. 236—80.)



3. A combined gas pressure regulator and control device for controlling flow of gas and regulating the pressure of such gas delivered to a burner, said combined regulator and control device comprising a casing having an inlet and an oulet, a partition having an opening, a main valve for controlling the opening and hence the flow of gas between the inlet and the outlet, a diaphragm operatively connected to said main valve and at the discharge side of the opening, structure including said diaphragm forming a chamber at the opposite side of said diaphragm from said partition, said casing having a passage to divert to said chamber gas flowing between the inlet and outlet, an auxiliary valve to control flow of gas through said passage to said chamber, said casing having an opening to permit venting of gas from said chamber whereby the latter is substantially at atmospheric pressure when said auxiliary valve is closed, and means responsive to pressure for operating said auxiliary valve so the latter assumes any position between and including its open and closed positions depending upon the pressure to which said last means is subjected.

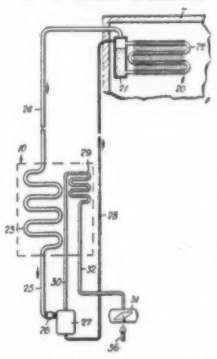
2,280,202. REFRIGERATING APPARATUS. Raymond E. Tobey, Springfield, Mass., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Feb. 21, 1940. Serial No. 320,043. 10 Claims. (Cl. 62—4.)



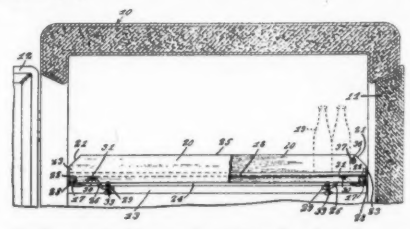
1. In refrigeration apparatus, the combination of a chamber to be refrigerated, cooling means at least a part of which abstracts heat from the chamber, means for circulating refrigerant through said cooling means, and a plurality of temperature-responsive means each having switch means associated therewith for rendering said circulating means active when the temperature-responsive means closes all the switch means and inactive when said temperature-responsive means opens one or more of said switch means, one of said temperature-responsive means being influenced primarily by the temperature of the media in said chamber and another being conjointly influenced by the temperature of the media surrounding said chamber and the temperature of a portion of said cooling means, so that the temperature of the media in said chamber is maintained within relatively narrow limits.

2,280,273. REFRIGERATION. Robert S. Taylor, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application May 14, 1940, Serial No. 335,077. 9 Claims. (Cl. 62—125.)

2. A heat transfer circuit including an evaporator, a condenser at a level below that of said evaporator and connected to receiver vapor from said evaporator, and a vessel connected to receive liquid from said condenser and deliver liquid to said evaporator respectively upon decrease and increase of pressure in said vessel, and means to cause said pressure changes including a second condenser connected to receive vapor from said circuit, a heater communicating with said vessel, and means for intermittently delivering liquid from said second condenser to said heater.

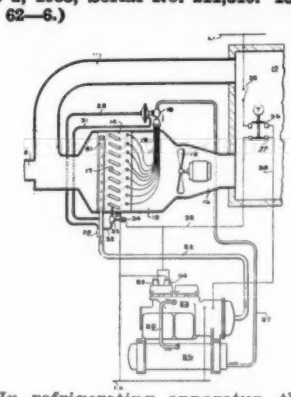


2,280,371. ADJUSTABLE GUIDE FOR REFRIGERATOR SHELVES. Leroy Bishop, Vista, Calif. Application Jan. 31, 1941, Serial No. 376,891. 5 Claims. (Cl. 211—153.)



1. In a shelf construction having transverse front and rear supporting members, vertical guide plates bridging the members and having a portion thereof extending above the members, and clamps pivotally mounted at the opposite ends of each of the plates, each of said clamps having a part extending at one side of its pivot to engage the adjacent supporting member and a part extending at the other side of its pivot having provision for holding the said first part in pressed engagement with its respective member.

2,280,425. AIR CONDITIONING APPARATUS. Charles M. Sanders, Jr., Oak Park, Ill., assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application June 2, 1938, Serial No. 211,310. 13 Claims. (Cl. 62—6.)



1. In refrigerating apparatus, the combination of an evaporator having a refrigerant passage, a valve for controlling admission of liquid refrigerant to said passage, a suction conduit connected to the outlet end of said passage for receiving vaporized refrigerant therefrom, means for controlling said valve in accordance with the superheat of the vaporized refrigerant discharged from said refrigerant passage to said conduit and including temperature responsive means subjected to the temperature of said vaporized refrigerant, and means for selectively bypassing refrigerant from said passage at an intermediate point thereof to said suction conduit and subjecting said temperature responsive means to the temperature of said by-passed refrigerant whereby said valve regulates the admission of liquid refrigerant to said passages so that a smaller portion of the passage contains liquid refrigerant.

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On thousands of farms milk must be cooled daily . . . or go to waste. In commercial establishments throughout the length and breadth of America, food must be refrigerated . . . or go to waste. In dozens of our military cantonments throughout the world, food must be refrigerated . . . or go to waste.

Lack of food, among other things, finally lost Bataan. Wasting of food is militarily unthinkable.

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- Wilson Sectional Walk-In Coolers for normal cold storage and for heavy-duty sub-zero applications.
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- Complete Sectional Locker Plants

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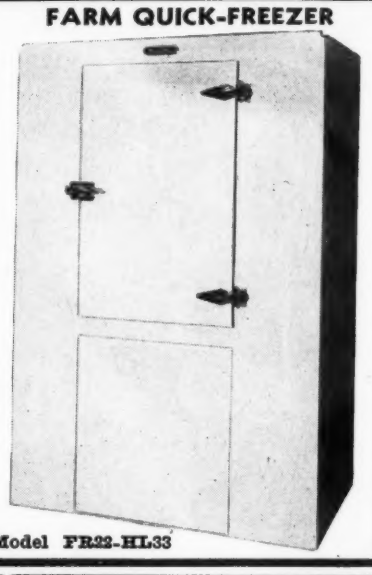

Model FR22-HL33

U. S. GOVERNMENT Specification
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Cafeteria Coolers
Filtrine Mfg. Co., Brooklyn

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POSITIONS AVAILABLE

COMMERCIAL REFRIGERATION and air conditioning service and installation men living in New England, New Jersey, Pennsylvania, and as a matter of fact, in any part of the United States and who are seeking permanent employment in New York City (Manhattan) on a wage scale in line with present high living costs please apply at once, stating full qualifications in first letter. Advertiser is one of the largest and best financed refrigeration companies in metropolitan New York. All correspondence kept strictly confidential. Box 1396, Air Conditioning & Refrigeration News.

CREATIVE OR DESIGNING ENGINEER. Must have had recent experience with refrigerator manufacturer in designing food storage and display equipment. Must know materials, wood-working, and sheet metal machinery; production processes and assembly. Capable of designing and laying out refrigerator equipment from U. S. Government specifications. Alert, imaginative mind. Able to convert new ideas in merchandising trends into modern design. Large Mid-West manufacturer. Splendid opportunity for permanent position. Salary from $300 to $500 per month. Write in own hand-writing, outlining qualifications. Box 1397, Air Conditioning & Refrigeration News.

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ROYAL announces an exclusive line of Wall Type Beer Display and Storage Cabinets. Remote and self-contained type. Featuring up and down sliding doors—fifteen case to one hundred and ten case capacity, requiring little floor space. Porcelain finish interior and exterior, neon lighting. Limited number of established dealers desired. Write at once for full details. ROYAL STORE FIXTURE COMPANY, 847 North Broad Street, Philadelphia, Pa.

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FOR SALE: Slightly used air conditioning equipment: 20-ton Peerless coil with heating coil; 15 H.P. Merchant & Evans condensing unit; three 10-H.P. Frigidaire condensing units all complete with motors and starters; five 5-ton air conditioning coils. EVERLAST REFRIGERATION CORP., 444 Fourth Ave. 30th St., New York City.

REPAIR SERVICE

ELECTROLUX GAS refrigerator units rebuilt and recharged. Burners, thermostats, Fultons repaired, exchanged. EDISON COOLING CORPORATION, 310 East 149th St., New York. Ask for Mr. Zysman at Stevens Hotel, Chicago, May 11, 12, 13.

When it Comes to NEWS

Air Conditioning & REFRIGERATION NEWS
APRIL 13, 1942
Bendix License Rights Upheld In First Test
Jobbers Ask Trade Views on Current Problems
Priority Ratings For Aluminum Are Announced
Commercial Sales Rose 45% in February
Miss Elliott Hits Prevailing Price Selling Practice

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In these fast-changing times, you need quick, reliable information about government regulations affecting your refrigeration business. You'll find it in the weekly issues of Air Conditioning & Refrigeration News, the industry's NEWSpaper. In the News you will also find all the latest word of the industry's new products and new markets, helpful articles on how to use priority forms, informative data on how to get priority orders. If you intend to stay in the refrigeration business, you need this timely paper. To make sure of receiving next week's issue, mail your subscription order today.

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All Electric Range Stocks Are Frozen

(Concluded from Page 1, Column 1)
enough ranges to utilize the number of heating units permitted under the terms of the Electric Appliance order, L-65.

A "domestic electric range" is defined in the order as any range or cooking stove for home use with electric heating elements and a total rated wattage of 2½ kilowatts or over.

No limitation is placed by the order on the manufacture or assembly of replacement parts for electric ranges.

The order also contains restrictions on the transfer of iron and steel now in the inventory of any manufacturer of domestic electric ranges.

Part of the text of the order is as follows:

SUPPLEMENTARY LIMITATION ORDER L-23-b—DOMESTIC ELECTRIC RANGES

Section 1028.3 SUPPLEMENTARY LIMITATION ORDER L-23-b

(a) **Definitions.** For the purposes of this Supplementary Limitation Order L-23-b:

(1) "Domestic Electric Range" means any range or cooking stove for home use, having as functional parts electric heating elements of a total wattage of 2½ Kilowatts or over.

(2) "Replacement Part" means any item, section, device, or article which is a component part of a Domestic Electric Range, and which is necessary to put a Domestic Electric Range in a safe and workable condition after wear, tear, or damage has rendered it unsafe or unfit to perform the function of simple domestic cooking, and which is not manufactured or assembled for use in the manufacture or assembly of any new Domestic Electric Range.

(3) "Person" means any individual partnership, association, business trust, corporation, governmental corporation or agency, or any organized group of persons whether incorporated or not.

(4) "Transfer" means to sell, lease, lend, deliver, trade, ship, or in any other way transfer title to or possession of any Domestic Electric Ranges. "Transfer" does not include a transfer of title merely for security purposes.

(b) **General Restrictions.**

(1) For the period beginning with the effective date of this Order and ending May 31, 1942, except as provided in subparagraph (b) (5) of General Limitation Order L-23, issued Dec. 13, 1941, no Person shall use, in the aggregate, to manufacture or assemble Domestic Electric Ranges more iron or steel than the sum of

(i) $\frac{1}{12}$ of the iron or steel use, in the aggregate, by him to manufacture or assemble Domestic Electric Ranges during the 12 months ending June 30, 1941; plus

(ii) that quantity of iron or steel which will enable him to complete his unused quota of Domestic Electric Ranges for the four months period, Jan. 1, 1942 to April 30, 1942, as defined in subparagraphs (b) (1), (2), and (3) of General Limitation Order L-23, issued Dec. 13, 1941.

(2) After May 31, 1942, no Person shall manufacture or assemble any Domestic Electric Range, except in the fulfillment of orders or contracts bearing preference ratings of A-1-k or higher.

(3) Nothing in this Order is intended in any way to restrict the manufacture or assembly of any Replacement Part.

(c) **Restriction on the Distribution of New Domestic Electric Ranges.** On and after the effective date of this Order, notwithstanding the terms of any contract, agreement or commitment to the contrary, no Person shall transfer any New Domestic Electric Range, except

(1) To fill orders bearing a preference rating of A-9 or better; or

(2) To deliver to its immediate destination any New Domestic Electric Range which is actually in transit at the time this Order takes effect;

(3) Pursuant to the specific authorization of the Director of Industry Operation.

(e) **Reports.** Not later than 14 days after the effective date of this Order each manufacturer to whom this Order applies shall file with the Consumer's Durable Goods Branch, Division of Industry Operations, War Production Board, Washington, D. C., a report on Form PD-192, stating also the quantities and model numbers of all Domestic Electric Ranges in his inventory and his estimated projected rate of production, by model number of Domestic Electric Ranges.

(f) **Violations.** Any person who willfully violates any provision of this Order, or who, in connection with this Order, wilfully conceals a material fact or furnishes false information to any department or agency of the United States, is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of or from processing or using material under priority control and may be deprived of priorities assistance.

(g) **Appeal.** Any person affected by this Order who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, or that it would result in a serious problem of unemployment in the community, or that compliance with this Order would disrupt or impair a program of conversion from non-defense to defense work may apply for relief by filling and completing Form PD-417 and forwarding the same to the War Production Board, Washington, D. C., Ref: L-23-b. The Director of Industry Operations may thereupon take such action as he deems appropriate.

(h) **Applicability of the Provisions of General Limitation Order L-23.** Except as hereinabove provided, this Supplementary Limitation Order is subject in every respect to all the provisions of General Limitation Order L-23.

Price Ceilings Set on Used Refrigerators

(Concluded from Page 1, Column 1)
tors has been ordered stopped by the War Production Board as of April 30. In the meanwhile WPB has frozen sales by manufacturers and wholesale outlets, releasing household refrigerators only to the armed services and persons holding A-10 or higher priority rating. As a result, retail stocks are shrinking and demands for used refrigerators increasing, says the OPA.

An "as is" refrigerator is defined as one which does not meet the standards set by the regulation for "un-reconditioned," or "reconditioned" machines.

"Un-reconditioned" according to the order applies to a second-hand box that has been cleaned and checked, is capable of maintaining an interior temperature of 45° F. for 24 hours in a room temperature of 90° F. and bears the seller's written 90-day guarantee for free replacement of any defective parts.

To be classed as "reconditioned" under the regulation a used refrigerator must be subjected to an extensive mechanical overhaul calculated to put it in first class operating condition. A 21-point list is included in the order spelling out each reconditioning operation. A one-year guarantee for free replacement of defective parts must be furnished the buyer of a reconditioned unit.

Brewery Will Install Food Locker Plant

HILLSBORO, Wis.—A frozen food locker plant will be installed in the Hillsboro Brewery, according to C. H. Pfeiffer, president of the brewery. The heavily insulated refrigerated cellars in this plant are said to be excellent for the sharp freezer and locker rooms.

A new addition to the brewery, easily accessible, will be erected on the ground floor to house a waiting room and the processing room.

Credit Sales Rules Are More Stringent

(Concluded from Page 1, Column 2)
stalment sales of automobiles, for which the down payment of one third and the maximum maturity of 15 months are retained, and furniture and pianos, for which the required down payment becomes 20% instead of 10% and maturity 12 months.

The list of consumers goods to which the regulation applies has been broadened to include automobile batteries and accessories; tires and tubes, bedding, draperies, binoculars, household electrical appliances not hitherto listed, used furniture, jewelry, luggage, athletic equipment, table and kitchenware, pottery, glassware, yard goods and non-military clothing and furs, including shoes, hats, and other haberdashery.

The amendment also provides that charge account customers of retail stores will be required to speed up their payments to complete them within 40 days after the end of the month in which the purchase is made. If this is not done the account will be transferred to an instalment basis requiring liquidation within six months and no further charge account purchases will be permissible until the items in default are paid for.

Any person formerly not subject to the regulation, but who becomes subject because of Amendment No. 4, is granted a general license.

Shroeder Heads Appliance Group In New Orleans

NEW ORLEANS—J. W. Shroeder, president of the Helshro Furniture & Appliance Co., has been elected president of the New Orleans Radio & Appliance Dealer's Association.

Also named as officers for 1942 were Morris Warnick, Federal Furniture Co., first vice president; John Steglemeyer, Philip Werlein, Ltd., second vice president; Al Lindauer, New Orleans Public Service, secretary; and Lou Turner, treasurer.

War Time Demands

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Inlet and outlet ports in line; not necessary to bend tubing, resulting in neater lines and easier installation.

NON-FERROUS ALLOY-VALVE
Globe and angle types with solder connections machined in valve body; ⅞" to 3⅛" O.D. tubing sizes.

CARTRIDGE DEHYDRATOR
Side outlet. Easy to refill—dehydrant cartridge can be quickly removed and replaced. Has dispersion tube.

"Y" STRAINER
Screen can be taken out for cleaning without removing the strainer from the line. Light weight. Has very large screen area.

SNAP-ACTION DIAPHRAGM RELIEF VALVE
Instantaneous pressure relief; fast positive reseating action; with diaphragm type construction.

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